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VIRAL INFECTIONS OF RESPIRATORY TRACT

Their Treatment and Prevention

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This discussion deals with acute, self-limiting, chiefly airborne diseases of known or presumed viral origin affecting predominantly the respiratory tract, ordinarily called colds, grip or influenza, and with certain newly delineated ones. There is hardly any need to recall the prevalence of the diseases in question or how little can be done for their prevention and cure. They account for most of the home visits (32 per cent) and provide the second most common reason (15 per cent) for office visits to general practitioners.[1] The average person is said to suffer from one to four bouts each year, accounting for about two hundred and fifty million infections annually in the United States.[2] Infections of the respiratory tract cause more loss of time from industry and from schools than all other diseases combined. They are rarely a direct cause of death, but they precede or incite many other serious infections, notably the bacterial pneumonias, subacute bacterial endocarditis, septicemia, purulent diseases of the accessory nasal sinuses and meningitis, and frequently precipitate the symptoms of peptic ulcer, coronary occlusion and other diverse diseases.

EPIDEMIOLOGY

In general, the epidemiology of component members of this group of diseases is similar. The causative agents are harbored in patients and in asymptomatic carriers who serve as migratory sources of infection. As the Wells have shown, secretions expelled as visible droplets by talking, sneezing or coughing are not so important in disseminating viruses from these sources as the minute, invisible, exhaled particles which float about in air like tobacco smoke. Other means of transfer undoubtedly exist also. Persons who inhale infectious agents suspended in air or acquire them otherwise react in different ways. Those who are immune or who are resistant by reason of an intact mucous membrane or other factors escape disease; those who are susceptible become infected. Epidemics are most common and most widespread in winter, but they occur in all seasons and in all climates (the Thomsons,[3] Smillie[2] and Hilding[4]). It is not known where the causative agents reside between epidemics, but viruses presumably are perpetuated by passage from person to person by a continuous chain of sporadic attacks or reside perennially in certain healthy carriers.[5] The incubation period and probably the carrier state are usually brief.

Little is known concerning specific immunity except in influenza. Immunity is believed not to last beyond several weeks or months after an attack.[6] Certain persons seem never to be attacked, while many have repeated bouts in a season. General resistance is thought to be afforded by good nutrition and health; yet robust persons in apparently excellent health contract infections. Local resistance appears to be largely dependent on an intact mucous membrane with its normal coating of mucus kept in motion by gravity and ciliary and muscular activity.[7] Lysozymes may also play a role. There is indirect evidence that chilling the surface of the body causes a reflex vasoconstriction and a fall of temperature of the mucous membrane favoring the invasion of viruses.[8] Mucosal irritants undoubtedly favor invasion, as shown by the mildness of experimental influenza in unanesthetized animals as compared with its severity when infection occurs during etherization, but the chief factor is the presence and activity of the causative viruses.

CLASSIFICATION

The group of infections of the respiratory tract are self-limiting diseases which have many epidemiologic, clinical and pathologic features in common. In the few studies available, the histologic changes of the nasal mucosa of the common cold[4] are almost identical with those of influenza in animals[9] and in man.[10]

In spite of many clinical similarities, if instances of infections are carefully studied individually or collectively, certain characteristics emerge which leave no doubt that a number of entities exist.[11] One may limit its attack to the nasal lining with profuse discharge (colds); one may cause sore throat (pharyngitis, tonsillitis); in one, constitutional symptoms predominate (grip); one is characterized by dry inflamed membranes with cough (viroid), and in another gastrointestinal symptoms may predominate (viral ? dysentery). Nevertheless, even in established entities clinical identification is obscured by variations in the susceptibility, immunity and reaction of the host to infection, which differences are reflected in various combinations of signs and symptoms and in the great variations of the severity of attacks in different persons and in the same person at different times. Differences also depend on the age group studied, on the general state of public health, on the season, on environmental circumstances and on other factors. In epidemics, attacks of all degrees of severity may be encountered ranging from subclinical infection or slight indisposition to severe

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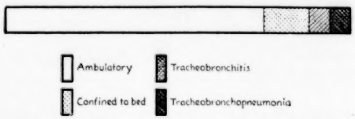
and even fatal, uncomplicated forms in which the whole respiratory tract may be affected (see the accompanying chart). Such variations may be accounted for by different reactions of different hosts to the same virus, and also to infection with a number of different viruses, some of them probably related, each



The relative proportions of mild and severe infections during an epidemic of "viroid" among 400 persons. Six per cent had pneumonia.[17]

of which causes disease characterized in general by a certain train of symptoms comprising an entity; yet there is so much overlapping as to defy clinical classification. The problem is, of course, further complicated when two or more different diseases concur in a community.

field prepared by the viral infection, which indeed it may be. Yet there is ample evidence in diseases such as measles, vaccinia, lymphocytic choriomeningitis and influenza that a primary bacteria-free viral pneumonia occurs.[16] Although Reimann suggested in 1938 [14a] and later gave evidence [17] that viral pneumonia in certain epidemics represents only the severest form of an otherwise mild, widespread disease and is caused by the same agent, there has been a reluctance to accept this view partly from force of habit or tradition and partly because etiologic proof is absent. Subsequent reports [18] of similar observations add support to this concept. There is abundant epidemiologic, clinical and pathologic evidence of the viral cause of the pneumonic forms. Infection was transmitted by filtered washings from patients to volunteers in whom the disease developed with different degrees of severity, with and without pneumonia.[19] A newly isolated virus considered to cause about 60 per cent of attacks of viral pneumonia was isolated in 1944 by Eaton and his associates,[20] but studies on nonpneumonic forms have not yet been completed. If etiologic proof comes, it will be wrong

Percentage of Symptoms and Signs in Various Infections of the Respiratory Tract

	A	B	C	D	E	F
Disease	Common cold	Exudative pharyngitis and/or tonsillitis	Grip "influenza"	Febrile catarrh	Viroid	Influenza A
Author	Townsend,[21a] 1927	Dingle,[28] 1944	Townsend,[21b] 1927	Stuart-Harris,[29] 1938	Reimann,[17] 1940	Stuart-Harris,[33a] 1938
Number of cases	3,545	60	297	28	400	84
Onset abrupt	40	..	59	42	25	75
Rhinorrhea	81	60	39	28	10	..
Nasal obstruction	44	60	36	70	80	73
Sore throat	14	80	29	80	60	43
Cough	31	70	47	80	70	71
Headache	19	65	58	64	80	87
General aching	14	..	67	53	30	51
Malaise	..	45	..	82	80	91
Chills	3	40	27	70	30	74
Fever	13	70	79	All ?	15	All ?
Discomfort in chest	5	..	21	40	..	24
Hoarseness	..	70	..	40	4	6
Sputum	12	..	18	50	5	31
Conjunctival injection	12	..	14	40	50	13
Photophobia	..	..	..	21	20	33
Anorexia	..	..	..	70	50	77
Diarrhea and/or vomiting	..	..	..	25	10	11
Sweating	..	..	..	50	60	31
Pneumonia	12	12	15	6	..	14
Complications	Common	Rare	Common		Rare	

Confusion in classification arises also from the nature and site of predominant symptoms, depending largely on the multitropism of the virus. In the respiratory tract, symptoms and signs obviously arise from the local effects of the virus, and constitutional symptoms may be accounted for by the circulation of toxin made or liberated by the viruses, if analogy may be drawn with the evidence of toxins of influenza viruses given by the Henles.[12] Viruses which affect principally the upper part of the respiratory tract at times also appear to be neurotropic [13] and to cause encephalitis, as in some instances of viroid [14] and influenza, dermatotropic as in the exanthems, and pneumotropic or enterotropic, as disclosed in the following paragraphs.

Pneumonias.—Pneumonia occurs in a small percentage of most epidemic diseases of the respiratory tract, as shown in the accompanying table. The incidence of pulmonary involvement will be found to be even higher in minor diseases of the respiratory tract than is indicated in the table, if roentgenograms were made routinely.[15] Until recently the pneumonia was usually regarded as a different disease or a complication caused by the secondary invasion by pathogenic cocci of a

to regard certain epidemic forms of viral pneumonia as a disease separate from the great preponderance of mild disease. To correct this defection, temporarily at least, the new name viroid was proposed [21] to cover all gradations of severity of the syndrome. The term if adopted should eventually be replaced by names for specific entities, as the causes are discovered.

Gastrointestinal Disorder.—Gastrointestinal derangement in the form of anorexia, nausea and vomiting occurs in some patients with disease of the respiratory tract, as shown in the table. This occasional occurrence gave rise to the undesirable term intestinal influenza, when in reality the symptoms are incidental to a disease of the respiratory tract. However, for the past twenty-five years reports have appeared of widespread epidemic diseases in which symptoms of gastrointestinal disorder predominate over those arising from the respiratory tract; these diseases seem to be specific entities commonly called epidemic nausea, vomiting and diarrhea. Their epidemiologic similarity to viral diseases of the respiratory tract, together with suggestive evidence that they are caused by filtrable, air-borne agents and enter the respiratory tract where they occasionally give local

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symptoms, justifies their mention as viral dysentery in this discussion.[22]

Terminology.—Medical history reveals many attempts at nomenclature, nosography and classification. The ancient Greeks used the terms coryza and catarrh; the Romans, gravado.[23] Later, influenza, grip, *Schnupfen, Erkältung, rhume, romadizo, la monga,* the cold, sniffles and others were introduced. Rhinitis, nasopharyngitis, tonsillitis, pharyngitis, laryngitis, tracheitis and pneumonitis or pneumonia are used according to the anatomic area affected, either alone or in various clumsy combinations, logically even as nasopharyngolaryngotracheobronchopneumonia when all areas are involved at once or in sequence, as they may be.

Because of the mass of confusing and uncertain factors just discussed, little progress in classification may be expected until etiologic diagnoses are possible. The first steps in this direction were made by Kruse in 1914 and later by others, who showed that colds were caused by filtrable agents.[24] A virus was cultivated artificially by Dochez. The greatest advances were the discovery of the virus of influenza A in 1933 by Smith, Andrewes and Laidlaw and, later, of influenza B by Francis and Magill, establishing influenza as a group of at least two specific entities.

For the sake of convenience in discussion and for the provision of possible points for further attack, some sort of arrangement of the common infections of the respiratory tract is desirable. A tentative grouping based partly on clinical and epidemiologic grounds and, so far as is possible, on an etiologic basis is proposed in the table. The outstanding features of each disease are emphasized in heavy type, and the obvious overlapping of most features illustrates the hazards of clinical classification. A brief discussion of each disease follows.

A, The Common Cold.—The symptoms and signs of the common cold are too well known from general personal experience to be recited here. Adequate reviews of epidemiologic, clinical and etiologic studies are available.[24] While differentiation may be impossible at times, reflexive, allergic, vasomotor or irritative rhinitis[23] should not be included in the group of colds caused by viruses. The outstanding features of colds are their periodic occurrence throughout the world in widespread epidemics or in sporadic form, characterized chiefly by rhinitis, rhinorrhea, mild indisposition and occasional complications by pyogenic cocci as shown in column *A* of the table. While the features listed statistically differ considerably from those in other columns, the common cold may be indistinguishable from influenza,[25] grip [26] and viroid.[17]

There are no accurate statistics in regard to the incidence of nonbacterial pneumonia as part of the primary infection in epidemics of the common cold. During mass roentgenography,[15b] evidence of pulmonary invasion is present much oftener than such invasion is suspected clinically.

B, Pharyngitis and/or Tonsillitis.—Because of the predominance of sore throat and of severer constitutional symptoms in pharyngitis and/or tonsillitis, this group is set apart from the common cold. According to Abernethy's experiments,[27] diseases resembling the common cold and pharyngitis were transmitted as distinct diseases to volunteers with incubation periods of one to two and five to six days, respectively. Although in column *B* of the table sore throat is statistically the same as in certain other columns, its predominance as a sign and especially as a chief complaint sets this group apart from the rest (Townsend [24a] and Dingle [28]) excepting influenza.[10]

According to Dingle's group [28] and contrary to common opinion, hemolytic streptococci were probably the cause in only 25 per cent of cases, as shown by serologic evidence; they were present but probably not the cause in another 25 per cent, and in 50 per cent there was no evidence of their presence or activity. While infections caused by streptococci were more severe than those caused by a presumptive virus, it is not possible to diagnose the condition carelessly called a "strep. throat" by inspection or by clinical evidence alone.

C and D, Grip and Febrile Catarrh.[29]—These groups in general comprise syndromes which, prior to 1933, were called grip or influenza and included specific influenza and viroid. Many other viral diseases accompanied with aching, fever and a normal leukocyte count, if undiagnosed specifically, may be mistakenly called grip, as has occurred in an epidemic of yellow fever in Brazil, in mild poliomyelitis and in lymphocytic choriomeningitis. The endemic influenza of Horsfall,[30] which often occurs during epidemics of influenza A or B, but without cultural or serologic evidence of either, and the unusual epidemic of Oliphant and Dawber [31] may be included here for the present. These groups differ chiefly from the common cold by their greater severity or greater proportion of more severe attacks and by the prominence of fever and constitutional symptoms. There are few distinguishing clinical features among them or even when they are compared with columns *E* and *F*, in which some of them may actually belong. Cough, nasal obstruction, dry but not painful pharyngitis, conjunctival injection and constitutional symptoms are common to all.

E, Viroid.—The symptoms and signs listed in column *E* include both those of the nonpneumonic forms and of viral pneumonia which are regarded here as different degrees of severity of the same entity or syndrome. The relative proportion of mild, moderately severe and pneumonic forms in one epidemic is illustrated in the accompanying chart. The signs and symptoms are much like those of the diseases in columns *C, D* and *F*, making the infections clinically indistinguishable from each other. A striking difference of viroid, as also recorded in most reports of severe forms, is the rarity of pyogenic complications. Diagnosis of the mild forms may be tentatively made by the coexistence of pneumonic forms during an epidemic and the demonstration of a cold agglutinin in a variable proportion of the patients during convalescence. Serum from a number of patients with mild nonpneumonic attacks neutralized Eaton's virus. General information of the viral pneumonias is reviewed elsewhere.[32]

F, Influenza A and B.—Numerous reviews of influenza [33] make detailed discussion unnecessary here. Since the discovery of its cause, influenza is removed from the indeterminate group of infections of the respiratory tract and established as an entity to serve as a model or standard against which others may be compared. The term influenza should now be used only in its restricted sense for disease caused by the viruses of influenza A or B. It is uncertain what name to apply to identical and often coincidental disease in which the virus of influenza or serologic evidence of its presence cannot be shown. It has been called influenza X or Y and endemic influenza.[30] It may be a different entity or it may represent attacks of A and B virus without demonstrable evidence thereof.

Influenza is said to differ from other infections of the respiratory tract by favoring secondary pyogenic bacterial invasion, yet this characteristic is not evident in all outbreaks. It was especially operative in the 1918-1919 pandemic, presumably of influenza A in its severest form.[33c] The high mortality rate was chiefly due to pneumonia caused by pneumococci, hemolytic streptococci and staphylococci and by a shocklike state. In a small proportion of cases in man [34] and in most animals experimentally infected,[34a] the lungs are attacked by the virus.

As stated earlier [35] influenza is clinically indistinguishable from other viral infections of the respiratory tract. In Adams' epidemic [10] among children, pharyngitis was the most characteristic feature. Swab preparations of material removed from the inflamed pharynx contain sheets of sloughed-off epithelial cells and an exudate of mononuclear cells characteristic of influenza A and of other viral infections of the throat. Diagnosis can only be made by the isolation and identification of the viruses or the serologic evidence of their activity by the complement fixation test, the Hirst chicken erythrocyte agglutination test and later by the demonstration of specific protective antibodies. Unfortunately, these tests are not yet generally used in the average diagnostic laboratory. Etiologic diagnosis is essential for epidemiologic investigation and for the efficient use and evaluation of the specific prophylactic anti-influenza vaccines now available.

TREATMENT

Nothing can be done specifically to shorten attacks of the group of diseases in question; and, except for influenza, little can be done to prevent them. Yet in spite of advice to the contrary in most modern textbooks, the management of the common infections of the respiratory tract often resembles an unreasoning mental reflex of applying a standardized ritual of purging, sweating, poulticing, gargling, cough prescriptions and pills—treatment which is rarely given for similar symptoms in other disease. Whether or not the outlay of millions of dollars [36] on obsolete, illogical medicaments, largely brought about by commercial advertising and self medication should concern physicians, a critical appraisal of the problem is needed, not only to prevent waste and actual harm, but also to reduce the cost of medical care. In the paragraphs that follow a critical appraisal of some of the common therapeutic and preventive procedures precedes a commentary on rational treatment and preventive measures.

CRITICAL APPRAISAL

Chemotherapy and Antibiotic Therapy.—In spite of the ineffectiveness of the sulfonamide compounds [37] and of penicillin [38] in viral diseases, these agents continue to be wasted in huge amounts in the treatment of viral infections of respiratory tract. Nor are there any facts to justify their use routinely to prevent possible secondary bacterial invasion which occurs in the minority of cases. Penicillin is less objectionable than the sulfonamides because of its relative lack of harmful side effects, but both agents if used too widely over long periods may give rise to strains of drug-fast pathogenic bacteria resistant to treatment with either.

Diet.—The old adage "stuff a cold and starve a fever" [39] should be interpreted to mean that there is no reason for withholding food during a cold but fevers, of course, should not be "starved." Diet in otherwise well nourished patients is of little importance during the short period of uncomplicated sickness.

Elimination.—Tradition favors the stimulation of excretion by the bowels, the kidneys and the skin to abort disease or to "get rid of the poisons," but there is no evidence that either effect is accomplished. Purgation may be harmful; it is unnecessary and exhausting. The same can be said for diuresis with unreasonably large amounts of water. It is doubtful if most of the remedies, such as sodium citrate, solution of iron and ammonium acetate, or spirit of ethyl nitrite, often used as diuretics, are effective.

It is difficult to account for the continued use of diaphoretics in the form of heat, blankets, compound powder of ipecac,[37b] hot lemonade or the mustard foot bath, which only increase the discomfort in certain infections already characterized by sweating. Severe diaphoresis is exhausting. A degree of vasodilation and mild sweating may provide a sense of comfort in "dry" types of disease of the respiratory tract, but no specific benefit accrues.

Alkalinization.—Despite the exploitation of the dangers of acidosis during colds by mineral water and nostrum vendors, citrus fruit merchants and others it is doubtful if acidosis significant enough to require treatment ever occurs in otherwise normal patients. Many of the advertised remedies are pleasant to take, however, and many are expensive.

Antipyretics.—General opinion now holds that a moderate degree of fever is helpful in overcoming infections, yet acetophenetidin, acetanilid, quinine, aminopyrine and salicylate compounds are widely used as antipyretics. They comprise the chief ingredients of many so-called "break-up-a-cold" nostrums. They have no effect on the infectious process. A reduction of fever and a false feeling of improvement may be harmful in tempting the patient to resume his usual activity.[40] The toxic and therapeutically effective doses often have little margin between them, and unpleasant or toxic side effects occur. The additional analgesic effect of certain of these drugs in moderate dosage provides the only justification for their continued use.

Irradiation.—Aside from a pleasant sense of warmth from infra-red rays and the psychologic effect of ultraviolet light, neither has a specific beneficial effect.[41]

Counterirritants.—Counterirritants applied to the chest or throat in the form of cupping; poultices of flaxseed, onions, mud or bread; capsicum, methyl salicylate, turpentine, mustard, hot goose or bear fat, and many proprietary compounds are traditional remedies. They were used to "draw the blood from congested areas." They are not harmful if properly applied to avoid burns and provide a pleasant sense of warmth, keep the patient's mind from other discomfort and guarantee the concrete evidence of solicitousness which so many enjoy during a dejected state. The comfort they provide can be furnished more easily by a hot water bottle or electric heating pad.

Cough Remedies and Expectorants.—Most cough remedies are inheritances of folk-lore. Yet many patients expect or demand a "cough mixture" in medical practice, purchase one of the hundreds of brands sold commercially or make their own. Few other human discomforts are so widely exploited by commercial interests as coughing. Coughing serves a useful purpose and should not be checked unless it is harassing or exhausting. Cough medicines commonly contain demulcents, expectorants and supposed antiseptics and serve as unnecessary vehicles for sedatives and other drugs. The popularity of many elixirs and nostrums depends largely on the amount of alcohol they contain.

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Syrup of wild cherry U. S. P., syrup of tolu U. S. P. and elixir of terpin hydrate N. F. are anachronistic vehicles. If codeine or other drugs are to be used, they are better given alone. Demulcents have little effect except in the oropharynx, since they are swallowed down the esophagus and inflammation is present in the nose, larynx or trachea.

Expectorants may be irritating and should not be used during the inflammatory stage or in infections in which exudate is naturally either minimal or profuse. Experiments show that potassium iodide, ammonium chloride or ammonium carbonate and creosote compounds do not change the volume or viscosity of the sputum.[42] They are slightly emetic, tend to increase the flow of saliva, not of exudates, and disturb digestion.

In spite of the demonstrated expectorant action in animals,[42e] one wonders if it is desirable or necessary to increase the output of fluid in the majority of cases of infection of the respiratory tract, especially during the febrile period, or whether the addition of nausea to the symptoms is helpful. According to experimental studies of Hamburger and Robertson,[43] the more fluid the exudate, the greater its penetration to the depths of the lung to which infection may be carried; the more viscid it is, the greater the ease of its expulsion.

Local Therapy.—The importance of the coating of mucus and of ciliary activity has been mentioned, yet attempts are often made during infection of the respiratory tract to "treat" all accessible inflamed areas with gargles, irrigations, sprays, packs and swabs. These are often composed of irritant antiseptics such as silver-protein compounds, silver nitrate, phenol, iodine and essential oils either alone or dispensed in a host of expensive prescriptions. They are used in spite of the fact that none can be effectively bactericidal or virucidal on muscosal surfaces without destroying the membrane as well. Even if they were effective, they are washed away a few seconds or minutes after their application by ciliary activity, the flow of exudate and gravity.[44] Strong solutions may cause harmful inflammation, destruction of tissue and cilia and a prolongation of disease.[45] Furthermore, antiseptics do not penetrate to the subepithelial tissue.[46]

Gargles cannot reach areas other than the mouth and oropharynx. Medicated irrigations or sprays remove protective mucus; they may spread infection and if applied with force may cause invasion of the sinuses. Packing or swabbing can reach only a few accessible areas; they may injure the membrane and induce bacteremia.[47] It must be admitted that at times these procedures afford a temporary sense of comfort, but there is no evidence that the course of the disease is otherwise favorably influenced.

The local application of sulfonamide compounds in any form is condemned as dangerous. Penicillin, tyrothricin and streptomycin are not virucidal, and their effect in rhinitis is negligible.[48] The local application of ultraviolet rays is ineffectual and the inhalation of chlorine has long since been abandoned. The continual use of oily preparations as spray or nose drops may lead to the development of lipoid-cell pneumonia.

Nasal Vasoconstrictors.—According to Kully,[49] about two hundred and forty preparations of nasal vasoconstrictors as nose drops, sprays, inhalants and ointments can be purchased. Their use decreases neither the severity nor the duration of attacks and in some instances may prolong acute rhinitis.[49a]

According to some rhinologists,[50] ephedrine by causing vasoconstriction removes the protective hyperemia, lowers the local resistance and thereby violates the usual principles of the treatment of acute inflammation. A secondary congestive effect may follow vasoconstriction. The possible effect on the blood pressure in hypertensive patients must also be considered.

Amphetamine causes the same effect and may give rise to habituation.[51] Atropine sulfate, a common component of "coryza tablets," is given to lessen secretions. It diminishes the output of the nasal, lacrimal and salivary glands but has no effect on an inflammatory exudate. It may cause unpleasant dryness, tachycardia, palpitation and other discomfort.

CRITIQUE OF CERTAIN PREVENTIVE MEASURES

General.—Diet: Although experimental evidence suggests that animals given diets deficient in vitamins are more susceptible to certain infections[52] there is little hope that optimal nutrition[53] or the addition of vitamins[54] to the food of persons taking an average good diet will aid in the prevention of infections of the respiratory tract, in spite of extensive advertising to the contrary. There is no "anti-infectious" vitamin.[55] There is no evidence that sun tanning or exposure to ultraviolet light prevents colds. Face masks as usually worn are of no value.

Hardening: The so-called hardening or habituation to changes in temperature or to fatigue is ineffective for the development of resistance to infection of the respiratory tract.[56]

"Cold" Vaccines: Since infections of the respiratory tract are apparently caused by a variety of viruses, most of which have not been isolated, there is obviously no specific prophylactic vaccine against infections due to any except influenza A and B.[57] Even influenza vaccines are not wholly satisfactory. The usual commercially prepared cold vaccines contain a mixture of bacteria which have nothing to do with colds, except perhaps as secondary invaders in a small percentage of cases. And even if they did, there is no acceptable evidence that vaccine prevents their invasion. Extensive controlled studies by Diehl and others have shown that cold vaccines whether given orally, parenterally or as a nasal spray do not prevent colds.[58] Gamma globulin is ineffective as a prophylactic agent.[59]

Tonsils and Adenoids.—According to Kaiser[60] and to Smiley,[61] colds occurred in children or adults equally whether or not their tonsils had been removed. Nor did tonsillectomy and adenoidectomy reduce the incidence of sinusitis, laryngitis or bronchitis. Obstructive adenoids, however, did appear to bear a relationship to frequent colds.[60]

It would seem from the preceding discussion that little of value is left for the treatment of this great group of diseases, which in a specific sense is true. Until the causes are discovered and specific therapy is developed, there is nothing available to prevent attacks, except of influenza, or to lessen the severity or shorten the duration of these infections. On the other hand, a number of procedures are recommended to lessen the discomfort of the patient, to provide for unimpeded natural recovery and to lessen the danger of complications.

RATIONAL THERAPY

Treatment should never be standardized but should be suited to the needs of each patient.

Rest.—Rest, as for any other infectious process, is the best treatment for acute disease of the respiratory tract, especially if fever is present, in which event confinement to bed is necessary.[49a] Rest and confinement

serve several purposes: (*a*) to aid recuperation in itself, (*b*) to lessen complications, (*c*) to prevent the spread of the disease to others and (*d*) to avoid contact of the patient with carriers of pathogenic bacteria. It is common experience to observe, however, that in the mildest infections the discomfort therefrom is often less annoying if the usual occupation or other diversion is pursued.

Diet and Fluids.—Little attention need be paid to diet and fluids in the average uncomplicated, short infection as long as reasonable amounts are ingested. The amounts of both food and liquids may be suited to the patient's choice. In severe cases the caloric intake, the bulk of the diet and the amount of fluid must be regulated accordingly.

Elimination.—If the habitual function of the bowel is undisturbed nothing need be done.[49a] For constipation the diet should be adjusted, and mild laxatives or enemas may be used. For diarrhea, rest in bed, regulation of the diet and heat applied to the abdomen are effective. Camphorated tincture of opium U. S. P. may be helpful at times. Patients who sweat profusely should be kept in bed, kept dried and given a change of linen as often as necessary. Atropine sulfate in doses of 0.6 mg. (1/100 grain) may lessen sweating. Analgesic drugs which increase diaphoresis should not be given.

Certain patients, but not all, receive comfort from mild diaphoresis provided by hot drinks, a hot bath, acetylsalicylic acid, a mixture of codeine and papaverine hydrochloride[62] and beverages containing alcohol.

Analgesics.—Aching and headache are best controlled by warmth, rest in bed and the commonly used salicylate compounds, the amounts used being dependent on the relief afforded. The temporary symptomatic benefit does not terminate the infection. Drugs should not be given routinely but only if necessary. Because of the inherent dangers or the unpleasant side effects, acetophenetidin, acetanilid, aminopyrine and caffeine need not be used.

Insomnia or restlessness are lessened by mental ease, comfort, small amounts of alcohol, hot drinks, sodium bromide or barbiturate compounds given only as needed. Alcohol has been used for generations to abort impending colds or to treat them. Without doubt in reasonable doses it provides comfort, induces drowsiness and an appropriate desire to rest; it causes peripheral vasodilatation and reestablishes circulation in chilled cutaneous and mucosal surfaces.[63]

Antibiotic agents or sulfonamides are used only in the presence of suspected or known complications caused by bacteria susceptible to their effects.

RATIONAL LOCAL THERAPY

Nasal Obstruction and Rhinorrhea.—Even temporary relief from the discomfort of nasal obstruction and running nose justifies the use of vasoconstrictive drugs[64] like ephedrine, epinephrine, naphazoline hydrochloride and amphetamine despite the objections mentioned previously. They are most safely applied in the form of a dilute, gentle spray or in convenient inhalers (amphetamine, 2-aminoheptane), but each should be used minimally; that is, as seldom as possible, and only to the point of opening the airway. The unphysiologic principles involved in the resulting ischemia and the possible irritative effect, idiosyncrasy, the presence of hypertension and the danger of habituation must be considered.[64a] Certain patients obtain relief by the inhalation of volatilized menthol, camphor, volatile oils and resins or by exposure to the heat of an open fire or to infra-red light. In others, cold air offers more comfort.

Vasoconstriction by the means just mentioned often controls rhinorrhea so that atropine with its unpleasant effects is rarely needed. The opposite condition, or excessive dryness, is aided by humidifying and cooling the frequently overheated, desiccated indoor air in winter.[49a] Gentle spray of isotonic solution of sodium chloride into the nares is helpful. Solutions used intranasally are not irritating if their hydrogen ion concentration is nearly neutral, in a range between p_H 6.8 to 8.4.[7c,d] The nose should be blown gently and as seldom as possible through both nostrils at once into disposable tissue. Thorough drying and ointment applied to the nares prevents chapping. Lesions of incidental herpes simplex should be sponged frequently with 95 per cent alcohol; ointments should not be used.

Sore Throat.—The unphysiologic principles, the futile and possibly harmful effects of gargling or swabbing with medicated solutions hardly justifies their use for the transitory relief they afford. Little can be done safely for painful pharyngitis besides the use of general analgesics or narcotics, spraying with warm isotonic solution of sodium chloride or solutions containing mildly anesthetic agents like thymol (liquor antisepticus, N. F.), or the application of heat to the throat. The application of cocaine solution is subject to the dangers of idiosyncrasy and habituation.

Demulcents like slippery elm, glycyrrhiza or glycerin in single swallowed doses exert a brief soothing effect. For a continual effect, they are better applied as lozenges dissolved in the mouth, so long as the digestion is not disturbed.

Cough.—A degree of coughing may be desirable and needs no treatment in the majority of patients, except when its frequency must be lessened somewhat to permit sleep and when its severity is painful, exhausting or dangerous. Treatment depends on whether the cough is caused by irritation from inflammation or dryness in the upper passages or from the collection of exudate lower in the respiratory tract. Coughing is often unnecessary and habitual. It can be voluntarily restrained if attention is directed to the fact, and there is no advantage in struggling to raise exudate which would be resorbed naturally. When cough is due to dry irritation, cooling and humidification of the air with elaborate systems or cheaply with water vaporizers is helpful. Inhalation of steam, with or without nonirritating aromatics (benzoin, camphor, menthol or eucalyptol) or spraying with isotonic solution of sodium chloride is helpful. The same result may be accomplished with slowly dissolving aromatic lozenges. A cloth binder (not adhesive tape) applied to the lower part of the chest and upper part of the abdomen gives a sense of comfort and support and relieves the soreness of the muscles. In some cases, 0.5 cc. of 0.5 per cent solution of *p*-chlorophenol in liquid petrolatum sprayed into the larynx or trachea with a curved-tip syringe gives relief for several hours. The substance has an anesthetic effect but is irritative.

Patients should restrict the use of their voice during the inflammatory stage of the infection. Smoking is generally contraindicated.

In infections with profuse secretion, coughing is helpful. So-called expectorant drugs have little or no effect on the tenacity of the exudate and often derange the digestion. Perhaps the best physiologic expectorant

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is carbon dioxide [65] which if inhaled in 5 or 10 per cent concentration with oxygen increases the depth and rate of respiration, increases muscular and ciliary activity and aids in the expulsion of exudate.

Codeine in doses of 5 to 10 mg. is the drug of choice for quieting overactive cough reflex.[66] Larger amounts may increase irritability. It should be given in tablet form, not in sweetened vehicles. For extremely severe persistent or paroxysmal cough, morphine may be used as a last resort. Diacetylmorphine is too depressive and may cause addiction.

Treatment of the Severe Pneumonic Forms of Infection.[32b]—The symptomatic treatment of the severe pneumonic forms of infection is essentially the same as that previously described. Dyspnea and cyanosis improve with oxygen therapy. Circulatory failure requires appropriate supportive management.[66a] The question of specific therapy with sulfonamides or with antibiotics often arises. They need not be given unless it is certain or reasonably certain that infection with drug-sensitive bacteria exists. There is no acceptable evidence of the beneficial therapeutic effect of either roentgen therapy or convalescent serum. Convalescence of one to two weeks is desirable.

RATIONAL PREVENTIVE MEASURES

General.—Instruction of the public in regard to the fallacies or benefits of various prophylactic measures is perhaps the most important measure. Public opinion may eventually oblige the ambulatory patient to isolate himself voluntarily during the contagious period, and persons especially susceptible to infections may learn to avoid the proximity of those who are ill or of crowds when colds are prevalent. Patients should learn to restrain coughing, sneezing and kissing. Nasal exudates and sputum should be deposited in tissue paper and burned. There are no practical means by which the asymptomatic carrier may be detected. Strict isolation could prevent infection in noncarriers, but it is seldom possible. Isolated communities often pass through a winter without colds until infection is introduced by visitors.[66b]

Although excellent physical condition, peace of mind, adequate diet and pleasant weather supposedly furnish resistance, infections of the respiratory tract occur for no obvious reason in otherwise robust persons. However, certain circumstances known by common experience to lead to colds such as exposure to wet and cold, sudden chilling in drafts, volatile irritants, dust, fatigue and other excesses should be guarded against, or neutralized by rest, warmth and comfort.[66c] Reasonably comfortable temperature and humidity of air in rooms is desirable, but no evidence is available as yet of their specific value. Residence in a climate where colds are less frequent is recommended for those who are subject to frequent infections, if economic circumstances permit.

New methods of sterilizing the air of closed quarters give promise of success. Volatilized propylene glycol in high dilution reduces the incidence of colds in controlled groups of persons [67] providing they do not leave the sterilized atmosphere. The same result has been noted for air irradiated with ultraviolet light, but recent experience [68] shows that it is not always effective.

Vaccines.—Except for influenza, no specific prophylactic vaccines exist.[69]

Local Measures.—As indicated previously the mucous coating and ciliary activity are perhaps the best barriers to infection. No measures should be used which disturb them. Mechanical obstruction of the nose by polyps or adenoids should be corrected surgically. Unless the nasal septum is extremely deviated, it should not be "straightened."

SUMMARY

The common infections of the respiratory tract of viral or presumably viral origin can be tentatively grouped on epidemiologic, clinical and etiologic grounds as the common cold, pharyngitis, grip, viroid and influenza. The causes of some are known and those of the rest await discovery before final classification is possible. Many preventive and therapeutic measures in common use are in need of revision or deletion. Except for influenza there are no specific preventive procedures, and no specific therapy exists for any infection of the group. Management should be suited to the needs of the patient in order to relieve discomfort, to prevent complications without impeding the natural process of recovery and to minimize the spread of infection to others.

LEUKOPLAKIA (LEUKOKERATOSIS) OF THE PALATE, PAPULAR FORM

Its Relation to the Use of Tobacco

Chairman's Address

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Much has been written concerning leukoplakia buccalis, but references to its occurrence on the palate are scanty. Moderate diffuse grayness in this area is not an unusual observation, and plaques similar to those on the mucosa of the cheeks are mentioned occasionally. However, the first appearance of the papular eruption of palatal leukoplakia in the American medical literature was in an article by Fordyce and MacKee [1] published in 1926. Without elaboration in the text, there was a photograph which portrayed a condition that the legend designated as "mucous adenomas of the palate." Under the title "pseudoleukokeratosis of the buccal mucous membranes" Grütz [2] described 3 cases in 1928. In the succeeding year Howard Fox [3] presented a patient at a dermatologic meeting as having "gray rugae of the hard palate." From the description I infer that this was an example of the same disease. In 1930 Harold Orr [4] reported 7 cases of a "peculiar papular eruption of the hard palate" and described the histologic observations. Since then reports have been added by Hückels,[5] Krainz and Kumer,[6] Ronchese,[7] Tappeiner,[8] Thoma [9] and Cahn.[10] Photographs with-

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Acknowledgment is made of the assistance of Dr. Howard T. Karsner in the preparation of the photomicrographs and of Dr. Donald J. Rehbock in the histologic studies. Dr. George Miller MacKee furnished the photograph of the patient whose case was originally reported by Fordyce and MacKee.[1] Dr. Charles G. LaRocco cooperated in the clinical observations at St. Vincent Charity Hospital.

1. Fordyce, J. A., and MacKee, G. M.: Diseases of the Oral Mucosa, Arch. Dermat. & Syph. **13:** 601-642 (May) 1926.
2. Grütz, O.: Ueber Pseudoleukokeratose der Mundschleimhaut, Dermat. Wchnschr. **87:** 1075-1078 (Aug. 4) 1928.
3. Fox, H.: Gray Rugae of the Hard Palate, Arch. Dermat. & Syph. **19:** 139 (Jan.) 1929.
4. Orr, H.: Peculiar Papular Eruption of the Hard Palate, Brit. J. Dermat. **42:** 436-437 (Oct.) 1930.
5. Hückels, E.: Die papelförmige Leukoplakia des harten Gaumens alter Tabakraucher, Inaug. Dissert., Kohn, 1931.
6. Krainz, W., and Kumer, L.: Ueber eine Raucherleukokeratose des Gaumens, Arch. f. Dermat. u. Syph. **168:** 224-229, 1933.
7. Ronchese, F.: Leukoplakia and Tobacco, Arch. Dermat. & Syph. **36:** 1222-1224 (Dec.) 1937.
8. Tappeiner, S.: Ueber tabakbedingte Leukokeratosen des Gaumens, Arch. f. Dermat. u. Syph. **181:** 173-177, 1940.
9. Thoma, K. H.: Stomatitis Nicotina and Its Effect on the Palate, Am. J. Orthodontics (Oral Surg. Sect.) **27:** 38-47 (Jan.) 1941.
10. Cahn, L. R.: A Note on the Histopathology of Leucoplakia of the Palate, Am. J. Orthodontics (Oral Surg. Sect.) **27:** 35-37 (Jan.) 1941.

out clinical description are found in an article by McCarthy [11] and in Burket's [12] text (table 1). An excellent general description is given by Hayes Martin.[13] The condition has been referred to as papilliform leukoplakia, smoker's keratosis of the palate, smoker's palate, tobacco-conditioned leukokeratosis of the palate and stomatitis nicotina, as well as by the terms already mentioned.

SYMPTOMS

Subjective symptoms are slight or absent. Only occasionally does the patient perceive any roughness of the palate with the tip of the tongue, and the majority are unaware of the disease until it is discovered by examination. The appearance is characteristic. The notes I made at the time when Fordyce and MacKee's [1] patient, a white man aged 54, was first seen in Dr. Fordyce's office showed that the anterior third of the hard palate was almost covered by numerous closely aggregated small gray papules, pinhead in size, with slightly roughened surfaces. The posterior third of the hard palate and the entire soft palate

TABLE 1.—*Cases Reported in the Literature*

Observers	Sex: Male	Sex: Female	Sex: Not Stated	Ages	Use of Tobacco
Fordyce and MacKee [1]	1	..	..	54	Yes
Grütz [2]	3	..	..	..	Pipe
Fox [3]	1	..	..	33	Constant, cigarette
Orr [4]	7	..	..	1 under 40 6 over 40	Heavy
Hückels [5]	12	..	..	50 to 77	Heavy, pipe
Krainz and Kumer [6]	10	..	..	..	Heavy
McCarthy [11] (cut only)	..	..	2	..	Yes
Ronchese [7]	1	1	..	..	1 none; 1 pipe
Tappeiner [8]	2	..	..	58, 75	Heavy, pipe
Thoma [9]	4	..	..	54 ? ? 75	Excessive, cigarettes Continuous, pipe Heavy, pipe Pipe, 1 lb. per mo.
Cahn [10]	1	..	..	40	Very light
Cahn [10]	..	1	..	60	
Burket [12] (cut only)	..	..	1	..	
Levine	1	..	..	55	Heavy, pipe
Cummer	6	..	..	47, 62, 64, 64, 70, 71	Pipe
Totals	49	2	2		

were covered with bright red papules of similar size, which were equally closely set but had more hemispheric tops and were less firm in consistency (fig. 1). A water color drawing made at the time and still in my possession shows these characteristics clearly.

With certain variations this description would apply to the majority of recorded cases. The entire palate is not always involved, nor are the papules inevitably small, for some as large as 5 mm. have been observed (fig. 2). The eruption appears more frequently on the hard palate than on the soft palate. Krainz and Kumer [6] noted a sharp line of demarcation between the involved and uninvolved portions of the hard palate in some instances but not in others. The mucosal surface intervening between the gray papules, although usually gray, may be fairly normal in appearance. Grütz [2] found that the white and thickened mucous membranes appeared as superficial cross folds, while Krainz and Kumer [6] described lengthwise and crosswise folds in 2 of their patients. When the papules are situated on the rugae there is a suggestion of gray bands crossing the anterior portion of the hard palate.

The prominence of the rugae exposes them to irritation. To determine the nature of their structure longitudinal sections were cut as shown in figure 3.

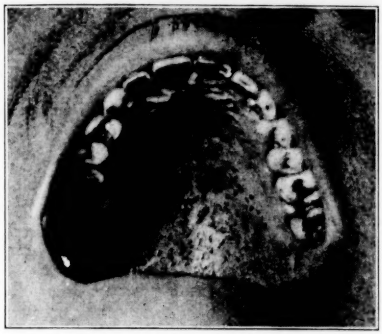

Fig. 1.—Papular leukoplakia. Original case of Fordyce and MacKee.[1] Depression in center of hard palate is site of biopsy.

They showed that the epithelial layer is the same in the elevated and depressed areas and that the elevations are due to pads of connective tissue beneath the rugae (fig. 4). In edentulous mouths the rugae are either entirely absent or greatly flattened.

The striking and characteristic feature of papular leukoplakia is the occurrence of red dots, often with depressed or umbilicated centers, which cap some of the papules. These are observed only on the mesial-posterior portion of the hard palate and the soft palate. In this region Hückels [5] stated that the palatine mucous glands are situated, isolated at first and arranged in lengthwise rows further back. He quoted von Szontagh

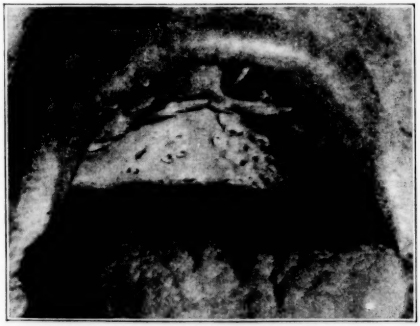

Fig. 2.—Papular leukoplakia, case 6. The papules are larger.

as having counted two hundred and fifty such glands on the hard palate of 1 person.

To confirm this statement and to plot the exact location of the palatine glands, palates were secured at autopsy and sections cut crosswise at regular intervals. Their distribution, which did not seem to vary with the age of the persons, is shown diagrammatically in figure 3. It should be observed that the central-

11. McCarthy, F. P.: Etiology, Pathology and Treatment of Leukoplakia Buccalis, with Report of Three Hundred and Sixteen Cases, Arch. Dermat. & Syph. **34**: 612-623 (Oct.) 1936.
12. Burket, L. W.: Oral Medicine, Philadelphia, J. B. Lippincott Co., 1946, p. 137.
13. Martin, H.: Tumors of the Palate (Benign and Malignant), Arch. Surg. **44**: 599-635 (April) 1942.

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posterior area in which they are situated is the only part of the hard palate in which red papules are found. They are also observed in many cases on the soft palate, which contains many mucous glands.

FREQUENCY OF OCCURRENCE

Eichenlaub's[14] study is of value in ascertaining the frequency of palatal leukoplakia. In examining 16,802 veterans at the Veterans Administration Facility in Washington, D. C., he found 327 persons with leukoplakia, with involvement of palatal and buccal mucosa in 3 instances and of the palate alone in 2. It is my opinion that the condition is frequently overlooked in routine examination and that it would be found much oftener if the palate were scrutinized in all cases. After discovering their first case accidentally, Krainz and Kumer[6] collected 9 more in a few months. Obviously the true nature of the lesions was not recognized even in some of the earlier cases reported by competent observers because of lack of familiarity with the clinical picture. Doubtless this accounts for the paucity of references in the American literature, to which Krainz and Kumer[6] have called attention. In this country dentists seem to have been more alert in the recognition of this disease than have the medical practitioners.

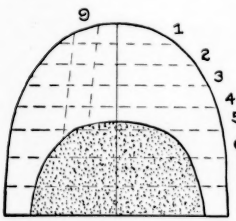

Fig. 3.—Distribution of mucous glands in the palate. Sections were made across the mucous membrane of the hard palates at lines from 1 to 8 inclusive. A longitudinal section was made at 9 to study the structure of the rugae. The palatine mucous glands are situated in the dotted area.

To determine its approximate frequency in dermatologic practice I examined 587 palates with the results shown in table 2.

The number examined cannot be regarded as other than a sampling, but the table indicates that about 1 person in every 100 displays this condition, and the incidence is greatest in the later decades.

In this series there were also 33 persons exhibiting slight to moderate diffuse whiteness or grayness of the palatal mucosa without papules. All but 1 were smokers to some degree, the majority cigaret smokers. Their ages ranged from 17 to 71 years.

REPORT OF CASES

CASE 1.—G. F., a white man aged 70, was a heavy pipe smoker. Flat-topped gray papules and rounded papules with red dots were seen on the hard and on the soft palate; there was no denture. A biopsy was made.

CASE 2.—J. G., a white man aged 64, smoked fifteen to twenty pipesful of tobacco daily. He exhibited papular gray lesions, almost verrucous, with red dotted papules; also, a red, velvety appearance of the soft palate was observed. There was no denture.

CASE 3.—T. M., a white man aged 47, smoked 1 to 1¼ ounces of tobacco in a pipe each day. Gray papules over the rugae on the anterior portion of the hard palate, along with grayness and red points on the soft palate were observed. There was no denture.

CASE 4.—J. O., a white man aged 64, was a heavy pipe and cigar smoker. Gray papules and diffuse grayness of the entire palate, as well as the usual characteristic red points were observed. Buccal leukoplakia was also evident. There was no denture.

CASE 5.—A. S., a white man aged 62, smoked four or five pipesful of tobacco daily and exhibited a patch about 1.5 cm. in diameter in the central portion of the posterior third of the hard palate, with gray flat-topped papules and also with papules which had umbilicated red centers. There was no denture.

Fig. 4.—Longitudinal section through the anterior portion of the mucous membrane of the hard palate at line 9 as indicated in figure 3. The elevations of the rugae are made up of connective tissue. There are no mucous glands in this area (× 7.4).

CASE 6.—W. P., a white man aged 71 who smoked three small cans of tobacco a week, exhibited definite involvement of the palate with many flat-topped gray papules and umbilicated red topped papules on the middle and posterior thirds of the palate. There was no denture; a biopsy was made.

In addition I am permitted to report a case presented by Dr. Benjamin Levine of Cleveland at a meeting of the Cleveland Dermatological Society with the provisional diagnosis of angiokeratoma.

S. H., a white man aged 55, had a score or more of hyperkeratotic papillary lesions of the hard palate. In the center of each was a small bright red area, whereas the rest of the lesion was white. There had been considerable pain at times. A biopsy was made. The Kline test was negative. This man was a heavy pipe smoker.

HISTOPATHOLOGIC OBSERVATIONS

Histologically the essential observations include thickening of the epithelium with hyperkeratosis and dyskeratosis (fig. 5). Elongation and thickening of the rete pegs was usual. While Orr,[4] the first to describe the histologic changes in this disease, stated that there were no inflammatory changes in the dermis, Krainz and Kumer[6] observed slight changes in the cutis together with a moderate degree of perivascular infiltration of round cells and leukocytes; Ronchese[7] observed a small amount of fibrous stroma containing leukocytes, and Kurt Thoma,[9] round cell inflammation of the corium. Fordyce's case[1] showed considerable round cell infiltration.

TABLE 2.—*Frequency of Leukoplakia in Dermatologic Practice*

Age Groups, Years	Number Examined		Number with Papular Leukoplakia of Palate	
	Men	Women	Men	Women
10-19	22	38	0	0
20-29	72	79	0	0
30-39	47	61	0	0
40-49	61	53	1	0
50-59	60	25	0	0
60-69	33	12	3	0
70-79	16	3	2	0
80-89	4	1	0	0
Totals	315	272	6	0

Adequate study can be made only in serial sections; biopsies of my cases revealed dense infiltration of

14. Eichenlaub, F. J.: Leukoplakia Buccalis, Arch. Dermat. & Syph. 37: 590-596 (April) 1938.

lymphocytes and polymorphonuclear leukocytes in the corium and decided dilatation of the capillary spaces in the papillary bodies immediately adjacent to the narrowed ducts of the palatine glands (figs. 6 and 7). It is possible that these enlarged capillary spaces filled with erythrocytes give to the rounded papules the bright

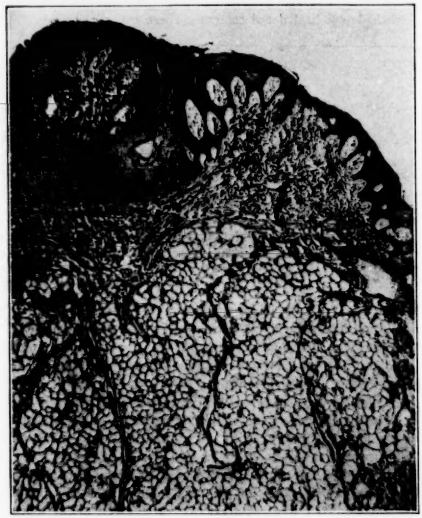

Fig. 5.—Biopsy in Fordyce and MacKee's [1] case, shown in figure 1. Note hyperkeratosis and, in corium, cellular infiltrate (× 30).

red color which characterizes them, but Rehbock has suggested that the red color is reflected by the minute dots, possibly composed of mucin, at the orifices of the ducts.

Krainz and Kumer [6] stated that the red spots seen microscopically appeared in section as moderately widened outlets of the mucous glands due to narrowing of the orifices by the horny layer and a resultant depression, while Cahn [10] in serial sections found that the leukokeratotic epithelium had broken in the center of the red papules to expose the corium. He felt that the red spot was not the orifice of the gland because both the red center and the orifices of the glands become occluded by keratinized epithelial cells. In sections studied by me the epidermis completely occluded the external orifice of the gland, the portion of the duct included within the specimen showed no dilatation or cystic change, and there was no adenomatous change.

Not long after seeing Fordyce and MacKee's case [1] I found that the condition was not adenomatous by comparing the sections from their case with sections of tissue removed from a corresponding location in a series of about 20 apparently normal palates. Cahn [10] stated that his sections showed no adenomas.

ETIOLOGY

Age and Sex.—Papular leukoplakia of the palate occurs predominantly in men. Of 53 cases, including 46 collected from the literature and the 6 observed by me, the sex is stated in 51, of which 49 occurred in men and 2 in women.

Orr [4] stated that his 7 patients were all over 40 years of age except for 1, aged 30. Fox's [3] patient was only 33; Cahn [10] had 1 aged 40; 1 of mine was 47, and in all the other cases reported, the ages ranged from 50 to 77.

Tobacco.—A history of tobacco smoking was obtained in all patients except 1 of Cahn's,[10] by whom it was denied; another of his, who made no statement, and 1 of Ronchese's [7] by whom smoking was denied. The descriptive terms adopted by many authors clearly indicated their opinions as to the causation of the condition. Pipe smoking was incriminated more often than cigar or cigaret smoking.

Additional evidence of the role of smoking was adduced by Krainz and Kumer [6] who, in a 67 year old man, previously a nonsmoker, produced a gray-white color of the palatal mucosa with characteristic red spots by having him smoke a pipe excessively. Equally convincing evidence was found by Tappeiner [8] and by Thoma,[9] whose patients exhibited the lesions on the part of the palate not protected by a partial denture, although none were evident under the denture.

Fig. 6.—Section made as one of serial sections. Hyperkeratosis blocks the distal portion of the gland duct and flattens the epithelial cells lining the duct; there is a cellular infiltrate in the papillary body adjacent to the duct (× 74).

Vaughan[14a] was able to clear up palatal leukoplakia by having his patient wear vulcanite plates.

The effect of abstinence from tobacco is significant. Grütz [2] found that the lesions disappeared when pipe

14a. Vaughan, H. C.: Leukoplakia, J. Am. Dent. A. **22**: 65 (Jan.) 1935.

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smoking was stopped and smoking otherwise was restricted. In Orr's [4] experience the only measure which resulted in cure was cessation of smoking. Two of his patients were syphilitics, 1 of whom stopped smoking with the resultant disappearance of the lesions in the course of four months. The other continued

Fig. 7.—Section from same case. Hyperkeratosis, capillary enlargement and cellular infiltrate (× 67).

to smoke, and the lesions remained unchanged at the end of a year. According to Hückels [5] the prognosis was good when smoking was stopped. Thoma [9] also observed improvement in his patients after smoking had been discontinued.

In this connection it might be well to consider briefly the opinions of some of those who have reviewed the general subject of leukoplakia of the mouth and its relationship to tobacco. Bettman [15] asserted that he had never seen leukoplakia in a nonsmoker. King and Hamilton [16] found that 69 out of 80 patients used tobacco in some form. Sturgis and Lund [17] stated that most authors agree in the observation that tobacco is used by 80 to 95 per cent of the patients with leukoplakia. In Eichenlaub's [14] 327 cases of leukoplakia, tobacco had been used by all the patients except 5.

The type of smoking is important. McCarthy [11] expressed his conviction that the pipe is the most irritating agent and emphasized the importance of the method of smoking in the localization of leukoplakia. It is suggested that pipe smoking is especially likely to produce palatal changes since the stream of hot and unfiltered smoke is delivered directly against the roof of the mouth, whereas cigaret and cigar smoke is to some extent filtered through the stub or butt and is diffused through the entire oral cavity.

Hayes Martin [13] seldom found mucous membrane changes in the soft palate "except in heavy cigar smokers (those who smoke fifteen to twenty a day) in whom the soft palate and the base of the tongue become deep red and congested with marked hypertrophy of lymphoid tissue. Cancer . . . associated with heavy cigar smoking (an expensive habit) has been termed 'rich man's cancer.'"

15. Bettman, M. M.: Significance of Leukoplakia, J. Am. Dent. A. **18:** 1877-1883 (Oct.) 1931.
16. King, H., and Hamilton, C. M.: Leukoplakia Buccalis: Study of Eighty Cases, South. M. J. **24:** 380-383 (May) 1931.
17. Sturgis, S. H., and Lund, C. C.: Leukoplakia Buccalis and Cancer, New England J. Med. **212:** 7-9 (Jan. 3) 1935.

There are frequent references to Roffo's [18] experiments in which buccal leukoplakia was produced in rabbits by daily exposure to tobacco smoke. However, Bogen and Loomis,[19] who carried out experiments with mice and rabbits, made cutaneous application of the tar derived from the destructive distillation of tobacco, and treated controls similarly with coal tar of known carcinogenic properties. While the malignant change was observed in the controls, none resulted from the application of tobacco tar. The authors themselves pointed out that these results do not controvert the prevailing although not unanimous clinical observation that cancer of the mouth is unduly prevalent among those who are accustomed to the use of tobacco, since other factors such as mechanical irritation and the temperature of the smoke are involved.

Syphilis.—Formerly syphilis was considered prominent in the causation of leukoplakia. There has been a trend away from this concept in recent years, except possibly in regard to leukoplakia of the tongue. For example, Quick [20] has stated that it is misleading to associate leukoplakia with tertiary syphilis, and that there is probably more leukoplakia of nonsyphilitic than of syphilitic origin.

The relationship of syphilis in the reported cases of palatal papular leukoplakia appears to be slight. Only 2 of Orr's [4] 7 cases, 1 of Hückels's [5] 12 cases and 1 of Tappeiner's [8] cases were mentioned as disclosing evidence of syphilis either in the patients' history or in the results of laboratory examination. Tappeiner's case was significant because the patient was an old syphilitic with positive serologic examinations, but the lesions were seen only on the portion of the palate not protected by a denture.

TREATMENT

The indications for treatment are apparent. Cessation of smoking, especially pipe smoking, has resulted in either improvement or cure in too many cases to be disregarded. The wearing of a denture to protect the palate might be indicated in the case of inveterate, confirmed smokers.

Since the present vogue is to regard all human ills as deficiency diseases, it is inevitable that leukoplakia should be attributed to vitamin deficiency, the lack of both vitamin A and vitamin B having been incriminated. No convincing report of the beneficial effect of the administration of vitamin A has been found, but Abels, Rekers, Martin and Rhoads,[21] in an article accompanied by illustrations, have referred to results obtained by the use of either yeast alone or yeast with iron and hydrochloric acid. Of 23 patients so treated, 4 obtained the disappearance of all or a large part of the leukoplakic lesions on lips, tongue or buccal mucosa, while in 7 others the lesions became thinner or lost some of their yellow-white appearance.

PROGNOSIS

The prognosis in papular leukoplakia of the palate is good as far as may be judged from the small amount of clinical material on record. This has been especially true when smoking was discontinued. In none of

18. Roffo, A. H.: Leucoplasia tabáquica experimental, Bol. Inst. de méd. exper. para el e stud. y trat. del cáncer **7:** 130-144 (March) 1930.
19. Bogen, E., and Loomis, R. N.: Tobacco Tar: An Experimental Investigation of Its Alleged Carcinogenic Action, Am. J. Cancer **16:** 1515-1521 (Nov.) 1932.
20. Quick, D.: Leukoplakia and Allied Mouth Conditions, Canad. M. A. J. **40:** 234-239 (March) 1939.
21. Abels, J. C.; Rekers, P. E.; Martin, H. E., and Rhoads, C. P.: Relationship Between Dietary Deficiency and Occurrence of Papillary Atrophy of Tongue and Oral Leukoplakia, Cancer Research **2:** 381-393 (June) 1942.

Hückels's[5] 12 cases did cancer develop, although all the patients were over 50 years of age. In his study of tumors of the palate, Hayes Martin[13] expressed his belief that while the larger lesions in palatal leukoplakia usually show papillomatous overgrowth of the epithelium and are common in pipe smokers, such changes are rarely associated with cancer, and there is little statistical evidence to indicate that they have any great importance from the standpoint of carcinogenesis.

SUMMARY

The manifestations of leukoplakia on the palate are not always similar to those on the tongue or buccal mucosa.

Papular leukoplakia of the palate has not been generally recognized in this country, and some of the earlier cases were reported under other diagnoses.

Undoubtedly the condition would be observed oftener if routine examinations of the palate were made, and it would be recognized more frequently if physicians and dentists were familiar with this clinical variant of leukoplakia.

The papular form presents a striking clinical picture. In this form there are gray flat-topped papules or red hemispheric papules.

The histologic observations include thickening of the epithelium with hyperkeratosis and dyskeratosis; elongation and thickening of the rete pegs, usually accompanied with capillary enlargement in the papillary bodies, and a moderate degree of inflammatory change in the dermis.

Practically all reported instances have been in men, almost all of whom have been smokers, especially pipe smokers. Syphilis does not seem to be a causative factor.

The condition has been cleared up in some cases merely by abstaining from smoking, while in others a protective denture covering the palate has been effective.

The prognosis is good, since in none of the relatively small number of recorded cases has malignant change developed.

The Tendon Fascicle.—The unit of tendon structure is the tendon fascicle. This consists of closely packed collagen fibers with their parent cells, the fascicles being bound together by a layer of fine connective tissue, the interfascicular tissue or endotenon. The cross sectional area of the fascicle is variable but lies within certain limits (0.125-0.375 sq. mm.). The interfascicular tissue is probably largely nutritional in function, and the characteristic limits to the area of the fascicle is probably related to nutritional requirements. The interfascicular tissue may also be compared with the packing of a laminated spring and facilitates internal movement of the tendon. Where it has no synovial sheath the tendon is surrounded by loose fatty areolar tissue, the paratenon, which fills the interstices of the fascial compartment in which the tendon is situated. In the simplest form of musculotendinous junction the muscle fibers are continued as collagen bundles, and each group of muscle fibers enclosed in perimysium continues as a tendon fascicle, the perimysium being continuous with the interfascicular tissue. Where the muscle fibers join the tendon obliquely this arrangement does not always hold, but there is a close correspondence between the grouping into bundles of muscle fibers and the grouping into tendon fascicles. At its insertion, the tendon becomes intimately connected with the bone and periosteum. The majority of the collagen fibers of the tendon are continued into the bone as the perforating fibers of Sharpey, and the interfascicular tissue becomes continuous with the periosteum.—Edwards, D. A. W.: The Blood Supply and Lymphatic Drainage of Tendone, *Journal of Anatomy*, July 1946.

MANAGEMENT OF PATIENTS WITH CHRONIC HEADACHE

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Patients with chronic headache represent a considerable problem to the practitioner both because of their numbers and because of the stubbornness with which their symptoms often persist despite every effort at treatment. It is our purpose in this paper to outline some principles in the study and care of such patients which will help to achieve the best therapeutic results.

The great majority of all patients with chronic headache fall into one of the three following groups: migrainous, post-traumatic or psychogenic. The first two need no further definition here. In the third group we include patients whose headaches are found to be related to emotional stress, the relationship being seen either at once or after some study. These patients are without evidence of any organic disease which might be causally related to the headaches. They are chiefly women who have usually had headaches for many years, of either the acute, recurrent or the continuous, chronic type. The location and character of the headaches are variable, and there may be premonitory symptoms, such as photophobia, nausea or dimness of vision. In nearly all the women patients, the headaches are worse before or during menses.

The mechanism of all three of these types of headache is probably vascular. In the case of migraine, the pain is considered to be caused by paroxysmal dilatation chiefly of the intracranial branches of the external carotid artery. We have discussed the mechanism of post-traumatic and psychogenic headache in earlier papers[1] and have suggested that it may be similar to that of the headache which can be produced experimentally by the intravenous injection of a small amount of histamine, that is, to stimulation of the pain-sensitive structures in or near the walls of the large intracranial arteries by forcible vasodilatation. We wish to emphasize that there is no evidence at present that either of these two types of headache is caused by histamine sensitivity or by any other disorder of histamine metabolism.

Regardless of the precise mechanism of the production of pain in these three disorders, there is abundant clinical experience to prove that all three types of headache are readily precipitated and made worse by emotional stress and inner conflicts. It is of the greatest importance to bear in mind this apparent but often neglected fact when one is first examining and later treating a patient with chronic headache. If any one fails to do so, he must pay the price of his neglect ultimately in the form of less satisfactory therapeutic results.

Every patient with chronic headache should, of course, be given a thorough physical and neurologic

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1. Friedman, A. P., and Brenner, C.: Post-Traumatic and Histamine Headache, Arch. Neurol. & Psychiat. **52**: 126 (Aug.) 1944. Friedman, A. P.; Brenner, C., and Merritt, H. H.: Experimental Evidence of the Physiologic Mechanism of Certain Types of Headache, Arch. Neurol. & Psychiat. **54**: 385 (Nov.-Dec.) 1945.

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examination. In our clinic roentgenologic examination of the skull and electroencephalograms are also routine; certainly these and other laboratory studies should be done whenever indicated. However, it is just as important, in accordance with what we have said in the preceding paragraph, that the patient be studied adequately from a psychiatric point of view. Chronic headache is truly a psychosomatic problem, and neither the psychologic nor the physical aspect can be neglected with impunity. The initial interview in which the patient's history is obtained is the time to begin the psychiatric examination and a detailed account of the present illness is of the utmost importance. Only by inquiring into the precise circumstances of the patient's illness can one learn, for example, that a 60 year old patient had her first headache at precisely the moment of her reconciliation with her elderly husband who had acquired a mistress while the patient was away from home visiting a married daughter.

Attention should be paid both to the subject organization, which gives a cross section of the patient's present difficulty, and to the personality organization and past history, which give a longitudinal section of the life of the patient and an indication of his adaptation to past difficulties. The examiner should be on the alert to determine what factors in the patient's inner life and environment precipitate the headaches and, if possible, to form an opinion as to the dynamics which are involved. On the basis of such a psychosomatic study, a diagnosis can usually be reached and a decision made as to further treatment.

A word of warning might be added here against diagnosing a headache as psychogenic purely on the basis of the patient's description of the distribution and character of the pain. The fallacy of assuming that a headache is psychogenic simply because it is described as a pressure sensation or as being viselike or of hat band distribution is illustrated by the following case.

REPORT OF A CASE

CASE 1.—A. O., a white female nurse, age 22 years, had been suffering from headaches for two months. These were described as consisting of a feeling of pressure throughout the head or in one or another part of it. They were occasionally accompanied by nausea or even vomiting and were usually relieved by acetylsalicylic acid. Two days before entry into the hospital, the headache grew worse, and the patient felt tired and listless. During the recent, severe headaches, the patient screamed at times, was emotionally upset and even seemed confused but if she was spoken to she could always be roused and brought into contact. When the history was taken it was learned that she was dissatisfied with her present job, and that she had left her previous, congenial one just before the onset of her headaches. She lived with her family and was under considerable emotional tension, both because she disliked her stepfather and because the other members of her family disapproved of her fiancé.

Physical and neurologic examinations were negative except for questionable blurring of the disk margins. Roentgenograms of the skull and lumbar puncture did not reveal any abnormality. An electroencephalogram was diffusely abnormal, more on the left than on the right. Since visual field studies showed enlargement of the blind spots, a pneumoencephalogram was attempted, but the ventricles failed to fill. A ventriculogram then revealed dilatation of the entire ventricular system, and at operation a medulloblastoma was removed from the left cerebellar hemisphere.

As a diagnostic aid in the examination of patients who complained of headache at the time of the examination, we have recently practiced the simple procedure of local infiltration of the scalp with procaine hydrochloride (1 or 2 per cent) or isotonic solution of sodium chloride. This procedure usually brought relief within a few minutes after injection of either solution when carried out on patients with psychogenic headaches but patients with headaches due to migraine or cerebral tumor were not relieved. It was interesting also that in the patients who did experience relief an injection on one side of the scalp generally relieved the headache in that half of the head, and a subsequent injection on the other side relieved the rest of the ache. These results can be explained only by the assumption that the relief experienced was purely on the basis of suggestion, and it is interesting to note that the patients with psychogenic headaches were uniformly much more suggestible than those of the other two groups tested. A lasting therapeutic effect was not obtained by the procedure in any patient, and its only value, in our opinion, would be as a roughly reliable diagnostic guide in patients who present themselves to the physician for the first time with an acute headache.

Like the investigation of the patient with chronic headache, the treatment should be twofold: pharmacotherapy and psychotherapy. As the former is the more familiar, we may conveniently begin with it.

In the treatment of migraine, derivatives of ergotamine are generally accepted as the medication of choice. As is well known, these drugs are useful only in relieving an acute attack. The commonest cause for failure to achieve satisfactory relief is the use of too small a dose of medication, and for this reason it is important to administer the full therapeutic dose of whatever preparation is used. In our experience we have found that the relief afforded by ergotamine derivatives is often considerably enhanced by the addition of a dose of one of the short acting barbiturates at the beginning of the attack.

For the relief of a post-traumatic or psychogenic headache the most satisfactory medication is one of the usual analgesics (salicylates or acetophenetidin), to which may be added caffeine and one of the short or medium acting barbiturates. The use of codeine or other narcotics is contraindicated for obvious reasons.

Endocrine therapy has been recommended by many authors for various types of headache. Eight of our patients with menstrual or premenstrual headaches were given testosterone propionate (30 to 100 mg. in divided doses both orally and intramuscularly) with considerable improvement in 2, moderate improvement in 3 and no improvement in 3.

Twenty-four patients were treated with beta dimethylaminoethyl benzhydryl ether hydrochloride (Benadryl) in oral doses up to 200 mg. daily. Five of these patients had migraine, and 19 had psychogenic headaches. Each of the patients with migraine and psychogenic headaches reported doubtful relief, but none of the others noted any improvement at all.

Octin mucate (2-methyl-6-methylaminoheptene-[2]) has recently been recommended for patients with migraine.[2] We have given it to five patients in oral doses of 4 to 6 grains daily. Four patients did not experience relief. The other was improved, but as the improvement coincided with her husband's return from service, it is difficult to know whether to attribute the therapeutic success to the medication or not. A new ergotamine derivative, D.H.E.-45 (dihydroergotamine), has recently been reported to be superior to ergotamine

2. Palmer, H. D.: Migraine Headache, Clinics 4: 531 (Aug.) 1945.

itself in the treatment of migraine.[3] In our experience the results with D.H.E.-45 seem about equal to those with ergotamine. We have had no success in treating migraine with hapamine (a chemical combination of histamine and despeciated horse serum globulin), nicotinic acid, nicotinamide, thiamine chloride, estrogenic substances or caffeine.

It has been our experience that a combination of psychotherapy and drug therapy is much more effective than the latter alone in reducing the frequency, duration and severity of any of the three types of headache which we are discussing. Indeed in the majority of these patients medication is chiefly of value in relieving the discomfort of the acute attack, and it is only by reducing the amount of mental stress to which the patient is subjected that the headaches can be reduced in frequency and severity and often rendered easier to control by suitable medication when they do occur.

To achieve such a result is not equally easy in every case, nor must the means employed be uniformly the same. The psychologic problems vary greatly from patient to patient. In some they may be largely the result of an unfavorable environmental situation which must be changed for improvement to result. In others the difficulty is primarily in the inner life of the patient, with the result that he cannot adjust adequately even to the usual demands of his daily life. Advice as to mental hygiene, reassurance and the opportunity to ventilate his anxieties and conflicts are psychotherapeutic aids which are within the province of the practitioner and which in favorable cases will result in good therapeutic results. In other cases in which the patient's mental difficulties are more severe or more deeply repressed and hence less accessible to therapeutic influence, it seems best to refer the patient to a specialist. We would emphasize, however, that there is at least a large group of these patients who will respond satisfactorily to the type of psychotherapy described, which is well within the province of the general practitioner.

Two cases will serve to illustrate the symptomatic improvement that may follow the lessening of environmental stress in patients with headaches.

REPORT OF CASES

CASE 2.—B. P., a 29 year old, married housewife, had suffered with migraine for nineteen years. During the eighteen months before her first visit, the attacks had been particularly frequent and incapacitating. They were preceded by scintillating scotomas and some blurring of vision in the left visual field, were accompanied by nausea and vomiting and were limited to the right side of the head. On examination she was found to have a homonymous defect of the left visual field, and for this reason she was hospitalized. Complete studies, including electroencephalogram and pneumoencephalogram, failed to show any evidence of an expanding intracranial lesion, and the final diagnosis was migraine, possibly with some vascular anomaly of the cerebral cortex. She had two headaches during the month after her discharge from the hospital and none during the two following months. It was learned that her husband had been drafted eighteen months before her first visit, at the time when her headaches began to get worse. During his absence she managed his small business, which was a constant source of strain and aggravation to her. She could recall many occasions when after a particularly aggravating episode in the store a headache had developed so severe that she had had to go home and go to bed. At the time of her entry into the hospital her husband was released from service and resumed operation of the business himself, so that when she left the hospital she was not only reunited with her husband but relieved of the necessity of working away from home.

CASE 3.—H. G., a 62 year old widow, came to the hospital complaining of generalized headaches of over a year's duration, which had become so frequent and severe that she had been unable to work even part time during the four months before her visit. In the course of the initial interview, it became clear that the patient was extremely anxious about her only son, who was on hazardous duty in the Southwest Pacific. She was given an opportunity to air her anxieties at that and during the next visits. Physical and laboratory examinations did not reveal any abnormality, and she was placed on salicylates. To this medication she attributed the complete relief of her headaches, though in fact it was the advent of V-J day which was responsible for the striking therapeutic result. She has had no recurrence of her headaches, despite discontinuance of all medication and has been able to return to her old work. In her case the exacerbation of her symptoms during the last few months of the war were clearly related to the increasing anxiety for her son's safety as the hour for cessation of hostilities drew near.

The following report is a good example of a patient whose headaches were improved by simple psychotherapy, consisting chiefly of reassurance and an opportunity for him to discuss and air his anxieties about some relatively superficial problems.

CASE 4.—G. Z., a 32 year old attorney, had been suffering from attacks of migraine since his graduation from law school, four years previous to examination. Nothing noteworthy was revealed on physical or neurologic examination. Ergotamine tartrate was helpful in controlling or alleviating the attacks, but even with its help the patient was not always successful in avoiding severe discomfort. After some study it was ascertained that the migraine headaches occurred most often the evening before the patient was to appear in court or on a Sunday when he did not do any work at all. It also became apparent in the course of successive visits that the patient exhibited considerable evidence of psychologic tension. After a period of psychotherapy and adjustment, the patient became able to attend court without precipitating an attack and to enjoy his holidays. The frequency of his attacks was markedly reduced, they became of shorter duration and were now invariably relieved by the use of ergotamine tartrate. This improvement lasted for fifteen weeks, following which his headaches again became more frequent. After some discussion, it was learned that his wife was nearly at term and that he had considerable anxiety about her prospective delivery. In the course of further interviews he was given opportunity to discuss his anxieties more fully and was reassured. Since that time, four months ago, he has been free from headaches.

A final example may serve to illustrate the difficulties which may be encountered in certain cases in trying to influence the unfavorable psychic constellations which are present.

CASE 5.—N. T., a 26 year old business man, sought relief for recurrent, severe, bitemporal headaches since a minor head injury at the age of 11. He had been to many hospitals and physicians, and though he had always been told that there was nothing physically wrong with him, he had never been able to get relief from his headaches, which were often so severe that he had to leave his work and go home. In the course of a series of interviews, it became apparent that the patient had an intensely ambivalent attitude toward his father, with whom he was in close daily contact. Discussion of this relationship in a series of weekly interviews was accompanied by considerable diminution in the frequency and severity of the headaches, which after a lapse of four weeks in the treatment returned as severely as before. Because of the nature of the patient's conflict, intensive psychotherapy was advised, but it proved impossible to arrange this.

3. Horton, B. T.; Peters, G. A., and Blumenthal, L. S.: A New Product in the Treatment of Migraine: A Preliminary Report, Proc. Staff Meet., Mayo Clin. **20**: 241 (July 11) 1945.

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SUMMARY

1. Patients with migraine, post-traumatic and psychogenic headaches constitute the majority of all patients with chronic headache and represent a challenging therapeutic problem to the practitioner.

2. The mechanism of pain production is probably vascular in all three groups, and in each the headaches are readily precipitated and made worse by emotional stress and inner conflicts.

3. For this reason psychiatric study of the patient with chronic headache is as important as physical and laboratory examinations.

4. A new, simple, diagnostic procedure which is described is of service when the patient is seen during an acute attack of headache, and warning is issued against diagnosing headache as psychogenic on the basis of the distribution or character of the pain of which the patient complains.

5. For best results in treatment in most cases, psychotherapy is as important as drug therapy. Simple psychotherapy, such as lies within the province of the general practitioner, is often effective therapeutically. Such therapy is discussed briefly, as is drug therapy, and illustrative cases are cited.

ABSTRACT OF DISCUSSION

DR. CHARLES D. ARING, San Francisco: Headache probably is the symptom to which the flesh is most commonly heir. The populace receives relatively meager help in this disorder from the medical profession. We possibly are influenced more than we like to admit by the advertisements and have fallen in with suggestions that headache is amenable to whatever concoction pharmaceutical houses are otherwise unable to dispose of. Dr. Sullivan of New York some years ago exhibited a chart at one of the national meetings diagraming the good results reported by various authors for the multitude of drugs and manipulations used in treating headache. As I recall, it was demonstrated that almost anything may relieve attacks of headache in some 70 to 90 per cent of instances. Isn't it remarkable with all this relief floating about that the cures of headache are extraordinarily rare? Yet cure is within the accomplishment of many practitioners if they will follow the tenets outlined by Drs. Friedman, Brenner and Merritt. The only cure for headaches of emotional origin, which comprises about all of them, is psychotherapy, which is time and energy consuming and demands the best interests and intelligence of the practitioner of medicine. Resigned listening, awaiting the opportunity to interrupt will not do; nor will psychotherapy be successful in a single interview. It is only after several interviews with the understanding and informed physician that the patient may obtain some awareness of the mechanism of his headaches. When this occurs the road to recovery is no longer a thorny one. Diagnosis is always going to be knavish, and all of us are going to miss the occasional case of brain tumor or chronic malaria, particularly if we do not retain them in mind as possibilities, yet this will hardly justify the casualness with which we have handled this common problem in pain. While it is clear that vasodilatation, particularly of the external carotid system, is usually present during the pain of the migraine episode, it must never be lost sight of that the dangerous part of the syndrome is the preceding cerebral vasospasm, which may manifest itself by neurologic signs, the most common being scintillating scotoma and hemianopsia and numbness or tingling of one or both extremities of the same side. Less frequently one observes weakness and dysphasia, and sometimes weakness proceeds to a rather complete and not readily reversible hemiplegia. It is probably not widely known that people who have suffered from migraine most frequently die with cerebral softening. There is hardly any excuse for offering the public new substances which do not cure headache. It is reasonably safe to say that those drugs which we already have, including acetylsalicylic acid, properly and honestly exhibited will equal whatever preparations are brought forward.

DR. J. M. NIELSEN, Los Angeles: Dr. Friedman has been working with a certain group of patients. The outpatient department is usually the place to which ambulatory patients come, and usually the younger patients. When Dr. Friedman was working with us in Los Angeles in the wards of the General Hospital, where the patients are nearly all old, he had an entirely different source of headache, the so-called arteriosclerotic headache. Even in private practice among the aged we have that as a constant problem, and I do not think that we are dealing chiefly with migraine or chiefly with psychogenic cases. I have difficulty differentiating between migrainous and psychogenic headaches. After all, they work through exactly the same mechanism. I have a woman now who is highly intelligent, suffering with migraine. She had been diagnosed in Pittsburgh and had been successfully treated, but she said herself "My trouble is now, Doctor, that I wake up in the morning and say to myself 'I wonder if I am going to have another headache' and in about two minutes it begins. And if I never stop to think whether I am going to have one, then it doesn't come nearly as frequently." It seems to me that there are innumerable causes even of migraine. It is extremely difficult for me to delineate the syndrome. There is the case of the happily married woman who had no difficulty until a certain religious sect opened up a tent for an evangelistic revival in her city. She attended and became a convert. She tried to get her husband to go. They had considerable conflict, of course, but she became a convert and left her husband, joined the new sect and became an ardent worker. In this sect a vegetarian diet was compulsory, and she immediately went on a vegetarian diet. In three months she began to have what was considered a migraine headache. In a month she had another, in two weeks another, and by the time I saw her she had one every other day. I thought perhaps it was her acid-base balance that had been disturbed, but I could not put her back on meat; after all, her soul was more important. So I put her on diluted hydrochloric acid with each meal. She reported repeatedly for months back to the clinic and never had another headache. I have difficulty with the diagnosis. I think every case is a challenge, and I simply don't have any rule.

DR. SAMUEL B. HADDEN, Philadelphia: About seven years ago, under the title of "Neuralgic Headache and Facial Pain" (*Arch. Neurol. & Psychiat.* **43**:405 [Feb.] 1940) I reported headache similar to that which the authors have described. At that time I attributed most of these headaches to involvement of the occipital nerves in a fibrositis of the posterior neck and scalp muscles, but recognized that many of them were part of the symptom complex of a psychoneurosis. I reported that procaine was effective in giving prolonged as well as temporary relief. There is general agreement with the statement of the authors that the headache of migraine is on a vascular basis, but I do not believe that many of the headaches seen in the psychoneuroses are on such a basis. I feel that the headache of the psychoneurotic patient is more probably the result of the fatigue incident to tension and overacting scalp muscles. Many patients who suffer with this type of headache have discovered that periods of relaxation and gentle massage of the scalp muscles effect relief. In dealing with a large group of psychoneurotic servicemen, in whom headache was a frequent symptom, the puckering of the brow into a frown was so common that the group began to refer to those in this category as the "prune faced section." With instruction in how to relax, these patients were prone to experience prompt relief even early in the course of a program of psychotherapy. I would suggest that local heat, massage and instruction in the relaxing of the scalp and posterior neck muscles be considered as effective adjuncts to the symptomatic relief of these patients during their psychotherapy.

DR. WALTER FREEMAN, Washington, D. C.: I might as well take issue right from the start with Dr. Friedman and his colleagues and say that one of the best ways of relieving a migrainous headache is to inject a little procaine around the artery, whether it is temporal, occipital or frontal. Further-

more, in quite a number of cases my colleagues and I have secured permanent relief of migrainous headache by resection of a short piece of one of these arteries. It would be interesting in the psychogenic headaches, on the other hand, to have a test which would give some information concerning both the severity of the headache, the production of the headache and also the reaction of the patient to the headache. One of the most satisfactory tests to determine what sort of patient one has is to apply the Libman test for individual sensitivity to pain. That consists in pressing over the mastoid processes, which are insensitive, in order to accustom the patient to the idea of pressure, then bring the thumbs forward over the styloid processes, where pain should be felt by the normal person. There is a great deal of variation in individual sensitivity to pain. Dr. Libman pointed out that prize fighters can almost be lifted up by their styloid processes without producing pain. Others complain of pain the moment one presses on the mastoids a little bit. The second test I have found of value in these psychogenic headaches is the hyperventilation test. Often these headaches, so called, will be accompanied with symptoms such as dizziness, light headedness, coldness of the fingers and maybe palpitation, vertigo and dyspnea. Have you ever had a patient stand up and hyperventilate for one minute? You often see them contract their brows into the "prune face," and they will experience severe headache. If you stop the hyperventilation and have them attempt to hold the breath for a period of two minutes, the headache often disappears. Dr. Nielsen mentioned the value of hydrochloric acid in some of these cases. I think there must be some upset in the acid equilibrium on the emotion and hyperventilation basis that many of these patients show. The addition of hydrochloric acid or ammonium chloride to the intake of these patients is only a palliative measure; nevertheless, when one is dealing with a psychogenic headache for which the psychogenesis may not be appreciated by the patient or the situation may be incorrectible, sometimes a palliative remedy is satisfactory, and in this connection we have to remember that acetylsalicylic acid is a rather strong acid.

DR. MATTHEW T. MOORE, Philadelphia: From what has been offered by the authors, I fear there is too great a temptation, at times, to attribute a psychogenic etiology to many patients suffering from migraine in whom possible organic factors have not been fully investigated. At present I have a series of patients with a history of true and severe migraine who had been subjected to psychotherapy and prolonged psychoanalysis and who have been given various medicaments without avail. In these cases with hemicrania of long duration I have utilized the procedure, advocated by Watts and Freeman, of resecting a small segment of the temporal and supraorbital arteries, with very satisfactory results. Have the authors used this method, and if so what have the results been?

DR. FOSTER KENNEDY, New York: Being neuropsychiatrists, I suppose it is beneath our notice to realize that the primary ego is the gastrointestinal tract! In all this discussion I have not heard the word "constipation." One would hear it in internal medicine gatherings. Constipation is really the most common cause of prolonged headache: a simple idea, but one surely not to be forgotten. I have cured many headaches by reducing water intake. The idea of "forcing fluids" has been a ritual for fifty years on this continent. Every nurse says it in her sleep. The result is that patients think that by taking eight, ten or twelve glasses of water in a day, being nearer they think to cleanliness, they may be nearer too to godliness. By reducing fluids to 1 or 1½ quarts a day, one can frequently stop recurrent severe headache due to water balance chronically disturbed. Nor have I heard any one say anything of the allergic characteristics of migraine which must be considered in any general survey of this subject.

DR. ARNOLD P. FRIEDMAN, New York: We thank the discussers for their interesting remarks. We agree with Dr. Aring and Dr. Nielsen regarding the importance of psychogenic factors in the production of migraine headaches. In answer to Dr. Hadden's questions, we also use a certain amount of physical therapy in the form of warm baths and comfortable support for the head during a headache. Our experiments with procaine injection seem to indicate that suggestion is the most important factor in producing relief from headache by such injection. In our opinion the essential thing to treat in these patients is the underlying anxiety and emotional tension. Dr. Freeman's suggestions are interesting. Not being neurosurgeons, we have not resected any arteries ourselves. However, we have had opportunity to observe several cases in which this has been done, and in these the therapeutic results were not always as gratifying as in the ones Dr. Freeman has just reported. Dr. Moore's remarks about the importance of organic factors are well taken. Each patient coming to us was given a careful physical and neurologic examination, routine laboratory studies and in most cases x-rays of the skull and an electroencephalogram. Dr. Kennedy of course has had tremendous experience in treating these cases. So far we have not been impressed by the importance of allergy, constipation or water retention in most cases of chronic headache. The patients whom we have tried on salt poor diets with low fluid intake have had no relief from their headaches as a result of this regimen. The majority of persons whom we have tested show a positive test for histamine regardless of their susceptibility to chronic headaches. As is well known, histamine sensitivity is not a true allergic phenomenon.

INSULIN IN THE TREATMENT OF DIABETES MELLITUS

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In this year, 1946, the twenty-fifth anniversary of the great discovery by Banting and Best, it is fitting to summarize the majority opinion and the present policies of the large diabetic clinics of the nation in regard to the use of insulin in the treatment of diabetes mellitus. In this paper I shall present a summary of the information on this subject which I have obtained through personal and written contact with the many diabetic clinics of America, including the one with which I am associated.

It should give this audience great confidence in the basic soundness of the present conception of the correct use of available insulins to know that the information from these many sources indicates a remarkable uniformity of policy.

THE HISTORY OF INSULIN

It would be negligent to omit from a discourse such as this a few brief remarks on the history of insulin. Banting and Best completed the animal experiments and established proof that insulin lowered the blood sugar concentration and diminished the glycosuria in diabetic dogs, in the autumn of 1921. Insulin was first administered to a human diabetic, a boy aged 15, at the University of Toronto in January 1922. Collip furnished the plan and Eli Lilly and Company, in collaboration with others, contributed extensively to the production of insulin on a commercial basis. This original insulin became available to the medical profession in January 1923 and to the public six months later.

From the Mason Clinic, Virginia Mason Hospital.
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An arbitrary standard unit was defined early; it was soon increased by about 50 per cent. The method of standardizing fresh productions of insulin and the definition of the unit have been changed several times since 1923. The last change was made in 1942, when the last Pharmacopeia of the United States (U. S. P. XII) published the currently employed standard. Potency is now expressed in U. S. P. insulin units, which are equivalent in potency to the unit declared on the label of the container of this standard which is furnished for comparative purposes by the U. S. P. Committee.

Amorphous, or regular, insulin of approximately current unit strength remained the only available commercial insulin until 1937. The need for long-acting insulin was evident for many years before it became available. The cases of mild diabetes characterized by spontaneous normal fasting blood sugar had never been a difficult problem. The abnormal postprandial rise of blood sugar and glycosuria in this group, if not corrected by a minimal yet adequate diet, was easily controlled by one or two injections of quick-acting original insulin. But the cases of severe diabetes with a distinct tendency to a nocturnal rise of blood sugar constituted a problem calling for a long-acting insulin, of which a single injection each twenty-four hours would be effective in controlling this feature.

Thus, in 1935, the search for such an insulin was consummated by the development by Hagedorn of protamine insulin. This was later perfected as protamine zinc insulin by the Toronto group and, after clinical trial, became available commercially in February 1937. Eighteen months later, in August 1938, solution of zinc insulin crystals, commonly known as crystalline insulin, became available commercially.

Most recently globin insulin with zinc has been marketed by two manufacturers. It acts more quickly than protamine zinc insulin and less rapidly than regular or crystalline insulin; its action persists longer than that of regular or crystalline insulin but definitely for a shorter period than that of protamine zinc insulin. It produces its peak effect in about eight hours and expends about 80 per cent of its total effect in the first twelve hours.

For the most part, it was developed at Columbia University and, although highly acclaimed by certain clinics, it is considered an unnecessary insulin by most clinics. It has few, if any, attributes not possessed by the other insulins, when they are used either singly or in combination. It lacks the ability to produce therapeutic results comparable to those obtained by combinations of the other insulins, and this weakness is particularly manifest in patients requiring over 30 to 40 units per day.

AVAILABLE INSULINS

Regardless of the kinds of insulin now available or which may become available, and of whatever method of applying them to the treatment of diabetes in man is to be accepted as most logical and rational, the pharmacologic action and the method of application must accord with current knowledge of the disordered physiology characteristic of the disease and must be consistent with the experience gained from the treatment of diabetes with insulin during the past twenty-five years.

Diabetes may be produced experimentally in animals by three methods: subtotal pancreatectomy, the administration of large quantities of crude pituitary extract, and the administration of alloxan. Regardless of the method employed, the result is a loss of ability to produce sufficient insulin to meet the demand of normal metabolism. Again, whether there is a full acceptance of the overproduction or underutilization theory of diabetes, all concerned are willing to accept without question the fact that extraneous insulin administered parenterally controls the clinical symptoms of the disease, and causes glycosuria to disappear and glycemia to approach normal.

There are available now for treatment against diabetes two principal types of insulin: (1) quick-acting–short-acting insulin, namely—either amorphous (or regular) insulin or solution of zinc insulin crystals, known as crystalline zinc insulin; and (2) slow-acting–long-acting insulin, namely—protamine zinc insulin.

HOW MANY DIABETICS REQUIRE INSULIN?

Most estimates state that the number of persons known to have diabetes in the United States today approaches 1 million. At least one half of this number at large are using insulin, and among those patients seen in diabetic centers or clinics the percentage of users is as high as 85 per cent. It seems likely that many of the 50 per cent who are not using insulin today should be using it with consequential benefit. Estimates indicate that perhaps somewhat less than 50 per cent of the total known cases of diabetes today may be controlled, for the time being at least, without insulin on a diet adequate from all nutritional points of view but necessarily at a minimum calorie level. The remainder of the group require insulin for control. Of these about one-half may be controlled on protamine zinc insulin alone.

The average total daily dose of insulin is about 40 units. Many patients require less, and seldom is there need for as much as 100 units a day. The Mayo Clinic reports indicate that total pancreatectomy in man creates a demand for about 40 units of extraneous insulin per day.

ONE OR BOTH KINDS OF INSULIN?

Although protamine zinc insulin is a remarkable insulin and fills many long felt needs, it has definite shortcomings. Approximately 60 per cent of the effect of any dose of protamine zinc insulin is released in the first twelve to fourteen hours after injection. Therefore, it is always injected before the first meal of the day. This is logical, since the greater part of the effect of the dose is thus exerted during the hours when food is taken. The total practical dose, however, must be based on the blood sugar levels during the second twelve to fourteen hours after injection. This dose must not exceed the amount which produces a blood sugar level that approaches normal but does not reach reactionary levels during the night and before breakfast. A sugar-free, or nearly sugar-free urine during these hours is a desired objective. Because of this pharmacologic characteristic of protamine zinc insulin, in only about one half of those diabetic persons who require extraneous supplementary insulin can the disease be satisfactorily controlled on this insulin alone. When the total insulin dosage exceeds 30 or at most 40 units it will be found that the amount of insulin which satisfactorily controls the blood sugar level at night fails to meet the demands for extraneous insulin

during the day. As a result, blood sugar levels during the day exceed those considered desirable for good control, and excessive glycosuria results. To meet this situation, it is necessary to add to the regimen an appropriate amount of quick-acting insulin administered at the same time as protamine zinc insulin. Most clinics prefer crystalline insulin for this purpose.

ROUTINE MANAGEMENT

Many tables are available to enable the physician to prescribe a diet based on the ideal weight, which takes into consideration the basal calorie requirement plus calories for activity. The most commonly employed diet supplies 40 per cent (or somewhat less) of the calories as carbohydrate, 15 per cent as protein and 45 per cent (or somewhat more) as fat. This distribution will insure adequate vitamins, minerals, bulk and fluid. Begin treatment with the basal requirement or less and gradually increase the diet to the maintenance level. If one must err in prescribing the diet, either on the side of undernutrition or overnutrition, slight undernutrition is safer. This principle, enunciated by Allen in 1915, still holds.

The decision on whether or not to employ insulin at the beginning of treatment will be based on the severity and duration of symptoms, the degree of hyperglycemia and glycosuria and, finally, on the judgment and experience of the physician. Some will try response to diet alone at first. Early use of insulin will, however, bring about prompter control, permit earlier use of adequate diets and insure practical instruction in the use of insulin, which should be a part of the knowledge of every diabetic person. Of course, acidosis and complications always require insulin, and rarely should one attempt to treat diabetic children without insulin.

In the routine care of diabetes in which insulin is used, protamine zinc insulin is the primary or fundamental insulin, always given only once a day and before breakfast. The maximum dose which may be safely used is indicated by the fasting blood sugar level and/or the presence or absence of sugar in that specimen of urine which has not been in the bladder more than thirty to forty minutes before breakfast. It is safe to start with 10 units and increase 5 or 10 units every twenty-four to forty-eight hours until the fasting urine is sugar-free. Experience may indicate a higher starting dosage. It is universally observed in diabetic clinics that when the total insulin requirement exceeds 30 or at the most 40 units, it becomes necessary to supplement the effect of protamine zinc insulin with quick-acting insulin to counteract daytime hyperglycemia or glycosuria. Further increase of the protamine zinc insulin alone usually results in night-time hypoglycemia even though the daytime glycosuria is ultimately controlled. Routinely this supplemental quick-acting insulin is given as a separate injection at the same hour as the protamine zinc form. The amount required is oftenest about 1 unit of crystalline insulin to 2 units of protamine zinc insulin. The ratio may be less or occasionally greater than 1:2.

It may be necessary during the early period of use of supplementary insulin to use additional doses before lunch or supper, but in a short period of time these additional doses may be stopped. Experience may enable the physician to select those patients in whom the use of crystalline insulin with protamine zinc insulin at the start of treatment will shorten the time required to bring the diabetes under control.

It is ideal and helpful to have access to laboratories for blood chemistry, even in the routine care of diabetes, but it is not essential. There should be a greater number of accessible laboratories, but exceedingly efficient care can be based on urinalyses alone, employing single specimens, twenty-four hour collections and fractional collections.

Rather promptly after treatment is instituted there is frequently observed a sharp drop in the insulin requirement, especially if the diagnosis has been made early. The physician should not be influenced by this observation to suspend the use of insulin too quickly, even when this seems possible; continued rest of the island of Langerhans cells through the use of insulin early in the course of treatment may prevent some of the ultimate atrophy that leads to a future increase in the degree of insulin deficiency. Usually during the first year of treatment the insulin requirement will rise after the initial drop and then stabilize for a considerable period of time.

INSULIN DURING COMPLICATIONS

During complications, specifically infection, injuries, surgical procedures, acidosis and pregnancy, additional insulin is almost always required. This additional insulin should be the quick-acting type and should be given as separate injections every six hours. It is emphasized that this is additional insulin; that is, it is in addition to what the patient is currently taking, whether that be no insulin, protamine zinc insulin alone, or protamine zinc plus quick-acting insulin. This additional insulin is best given in an additional number of injections.

Infections and Injuries.—In the presence of infection, mild or severe, the basic insulin arrangement is not changed, but additional quick-acting insulin is given every six hours as indicated on the basis of the urinalyses. Injuries usually increase the insulin requirement, and changes in insulin administration are made in the same manner.

Surgical Procedures.—Although some authorities prefer to continue, during the operative and postoperative period, the amount of protamine zinc insulin usually taken by the patient, it is my opinion that the uncertainty of gastric feeding makes it safer to suspend the administration of protamine zinc insulin during this period. I prefer to use only quick-acting insulin every four to six hours, as indicated by the results of a urinalysis or by the blood sugar determination. A solution of dextrose in the amount of 125 to 150 Gm. per twenty-four hours is administered.

The surgeon dictates how long intravenous administration is to be continued and when oral feeding is to begin. Also, he decides when the type of food is to be changed from liquid to soft or from these foods to full diet. The internist should order all fluids during the postoperative period, the quantity to be decided by the surgeon and internist.

It is my practice to give 25 Gm. of quick-carbohydrate together with 25 per cent of the total number of units of insulin usually taken, as crystalline insulin, three hours before surgery and to divide the balance of the usual dose of insulin into equal amounts to be administered before each 1,000 cc. of 5 per cent dextrose solution which is given during the first twenty-four hours. During subsequent days the dosage may be based on four to six hour urinalyses as first mentioned, or the total amount to be given may be divided arbi-

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trarily into equal amounts administered before each intravenous glucose or oral feeding. To a considerable degree, during that period when glucose is being given intravenously the insulin requirement will be controlled by the judgment of the physician based on his experience with surgical diabetic patients and by his knowledge of the individual patient. This is so because urinalyses and even blood sugar determinations are rather unreliable under such conditions.

Near the end of the postoperative period and before discharge, control of the diabetes is again adjusted with protamine zinc insulin alone, or with protamine zinc plus crystalline insulin if necessary.

Pregnancy.—Insulin has made conception common among diabetic women. Insulin has increased considerably the percentage of successful terminations of pregnancy. There are many who still believe that good diabetic control throughout pregnancy is the most important factor in success. An increasing number of authorities, however, feel that substitutional hormone therapy is necessary to attain 90 per cent fetal survival as reported by White.[1] Increasing clinical evidence supports this opinion.

The insulin requirement during pregnancy may rise, fall or remain fairly constant. The usual insulin regimen followed by the patient will apply when diabetes exists before the onset of pregnancy. When diabetes develops during pregnancy the usual methods of instituting the use of insulin, as previously outlined under routine management, are to be employed.

To even a greater degree than usual the use of insulin during pregnancy must be distinctly individualized. The urine test during pregnancy is definitely unreliable as a guide to dosage because of the lowering of the renal threshold for dextrose. Therefore, to intelligently direct insulin dosage during pregnancy blood sugar determinations as often as bi-weekly are almost essential. Sufficient insulin to produce complete aglycosuria almost invariably results in reactions.

During pregnancy, protamine zinc insulin remains the basic form, and if control is not accomplished with this insulin alone, supplementary crystalline insulin is added to the regimen. In the absence of complications it is seldom necessary to give more than one injection of each type of insulin a day.

At delivery, the insulin arrangement will depend on the method of delivery. Spontaneous labor represents active exercise, and frequently not only less insulin but additional carbohydrate is necessary. If delivery is to be accomplished by cesarean section, insulin arrangement is comparable to that employed during any surgical procedure. Barnes and I [2] prefer to suspend the use of protamine zinc insulin and use only crystalline insulin every four to six hours as indicated.

Immediately after delivery there is a sharp reduction in the insulin requirement, regardless of intravenous or oral feeding. Frequently little or no insulin is required for twenty-four to as long as seventy-two hours. This is true even when the daily dose of insulin before delivery has been as much as from 50 to 60 units. Insulin must be administered cautiously during this period.

1. White, P.; Titus, R. S.; Joslin, E. P., and Hunt, H.: Prediction and Prevention of Late Pregnancy Accidents in Diabetes, Am. J. M. Sc. **198:** 482-492 (Oct.) 1939.
2. Palmer, L. J., and Barnes, R. H.: Pregnancy in the Diabetic, West. J. Surg. **53:** 195-202 (June) 1945.

Coma.—Insulin is the specific remedy in diabetic coma. Fluids and salt are necessary but not specific. The disordered metabolism of fat is in control of the organism during severe acidosis and coma, and recovery depends on a shift to the metabolism of carbohydrate. Only insulin will accomplish this.

A word of caution before the initiation of treatment is necessary: Be certain of the diagnosis of diabetic coma; additional insulin administered to a patient in severe insulin shock may be a lethal act. It is safest to have laboratory support of clinical evidence. Glycosuria with ketonuria in an unconscious patient does not always indicate diabetic coma. Before large doses of insulin are given, blood sugar and carbon dioxide combining power levels in the blood should, if at all possible, be determined. Coma is truly an emergency, requiring hospitalization whenever available.

As soon as diagnosis is certain, the first insulin is to be given at once. The insulin given in the first hour of observation is at least several times as effective as that given three or four hours later.

The total insulin required to correct diabetic coma may vary from less than 100 units to as much as 2,000 or more units. The amount of both the initial dosage and the total dosage is greater in proportion to: the duration of the diabetes; the amount of insulin used regularly; the duration of the acidosis, and the degree of seriousness of the complication. Although some authorities employ an initial dose of protamine zinc insulin in coma, I discourage this practice. It is too slow-acting for any emergency, and quick-acting insulin must be employed, regardless; once a large dose of protamine zinc insulin is given, the physician has lost control of insulin dosage for twenty-four hours, and, lastly, it may lull one into a false sense of security during a critical perod when prompt and sufficient insulin effect is essential.

This initial dose of quick-acting insulin varies from 20 to 40 units and from this amount up to 100 units. The average patient will receive 40 units subcutaneously. Knowledge of the patient and judgment based on experience may justify larger doses, as much as 100 units, especially when the degree of coma is pronounced, when shock is present and when blood sugar levels are high and carbon dioxide levels in the blood are low. Children require smaller fractional and total dosage than adults. When conditions are urgent, one-half the initial dose may be given intravenously.

Insulin must then be repeated every thirty to sixty minutes subcutaneously in appropriate dosage, guided by clinical and laboratory evidence of response, until the patient has recovered.

In the opinion of most authorities, and of myself as well, it is unnecessary, harmful and illogical to give dextrose to a patient in coma until there is evidence that sugar already in the tissues is being oxidized. This will be indicated by clinical improvement, a falling blood sugar level, a decreasing glycosuria and a rising level of carbon dioxide combining power. Most authorities prohibit the use of dextrose by vein or mouth until the urine is practically sugar-free.

Some clinics employ alkaline intravenous solutions in the treatment of coma; most clinics do not. Those who do use them, reserve them for patients in diabetic coma of decided severity and for times when the carbon

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dioxide combining power is low and is slow to rise toward normal. Although a few authorities consider alkaline intravenous solutions harmful, most authorities believe that they are harmless but nearly always unnecessary. Again, it should be repeated that insulin is the specific.

Two important points should be emphasized. Coma is a continuous emergency. Remain with the patient continuously to direct the dose of insulin and other therapeutic measures until clinical recovery occurs, and watch the patient closely for twenty-four hours longer. A relapse into coma may occur if treatment is discontinued too soon. Because of the overlapping effect of previous dosage, a sharp reduction in the amount of insulin to be administered is necessary for as long as twenty-four hours after recovery from the coma is complete.

Edema and the Insulin Requirement.—The insulin requirement is altered in the presence of edema. In the presence particularly of congestive heart failure blood sugar levels usually fall, and insulin requirement drops. The physician, although he takes cognizance of this fact, should not be deceived but should watch for the return of higher insulin requirement when compensation is restored.

THE INSULIN REACTION

The seriousness of insulin reactions is probably overrated. If a half million diabetic persons take insulin each day, the percentage of accidents and possible deaths is extremely low. Patients should be taught the significance of regular meals, early recognition of the symptoms or reaction and the importance of prompt treatment. It is dangerous to allow a patient to remain in hypoglycemia long, and it is doubly dangerous to administer insulin to an already hypoglycemic patient. In case of reaction, give dextrose early; continue it until the symptoms have been relieved and, if the patient has been unconscious from hypoglycemia for a long time, administer small amounts of carbohydrate continuously until recovery is complete.

THE INSULIN SYRINGE

Brief comment in regard to the insulin syringe is necessary. Insulin should always be measured in a syringe intended only for insulin. There are far too many types of insulin syringes available commercially. The dose of any kind or strength of insulin should be measured only on a scale intended for that particular strength. That is, 40 unit on a 40 unit scale and 80 unit on an 80 unit scale. Some physicians prefer a universal type of scale on the syringe used for measuring insulin. On such a scale, any strength of insulin may be measured with minimum chance of error. This syringe is a 1 cc. or possibly a 2 cc. syringe graduated into divisions of 0.01 cc. each. It is hoped that the American Diabetes Association will endorse and recommend an official insulin syringe.

MORE RECENT METHOD OF USING INSULIN

During the past two or more years a method of mixing crystalline insulin and protamine zinc insulin in the same syringe or in a bottle prior to administration has been given a trial. The comment regarding mixtures in this paper refers to those mixtures where the two insulins are thoroughly mixed, one with the other, either in the syringe or in a sterile bottle. Peck [3] and Colwell [4] have published the most comprehensive studies. The feasibility of mixtures is based on the fact that standard protamine zinc insulin contains a definite amount of unsaturated protamine. When crystalline or regular insulin is added to protamine zinc insulin this unsaturated protamine combines with the insulin up to the point of saturation. When more than sufficient crystalline to complete saturation is added to the protamine form, uncombined crystalline insulin remains in the mixture in varying amounts, depending on the proportions of the mixture. Nothing less than equal parts is logical. The most commonly employed proportion is the 2:1 mixture (two parts crystalline to one part protamine zinc insulin), although the proportions may be adjusted to the particular needs of the patient. Thus, it may be found that 3:1, 3:2, 4:3 or 5:3 is best suited to a given patient. This variation of the proportions employed in a mixture creates a flexibility which permits a more or less tailor-made pharmacologic adjustment of the insulins to the individual patient, if such fine adjustment is desirable. Of course, the p_H and the zinc content of a mixture differ from those of standard protamine zinc insulin. There is a difference of opinion as to whether or not the insulin effect of a mixture differs from that which would be obtained by administering crystalline and protamine zinc insulin separately in doses computed to give equal effect.

My experience with mixtures used by 156 adult and 72 juvenile patients with diabetes during the past two years leads me to believe that the disease of 25 to 35 per cent of those who require both short-acting and long-acting insulin is better controlled on a mixture than on separate injections; in 25 per cent of the patients on mixtures, the disease is better controlled when the insulin mixture is prepared in a bottle in an amount sufficient for periods of two or three weeks than when there is fresh daily preparation of the mixture in a syringe; 2 parts crystalline to 1 part protamine zinc insulin was the most commonly employed proportion.

Mixtures are definitely on trial and in many large clinics are used only in a small group of especially selected cases or not at all. However, in other large clinics they have been given extensive trial and are held in considerable favor, and in these clinics mixtures are employed at present in the treatment of 50 per cent or more of the patients using insulin. I believe that mixtures will be employed more extensively in the future. As larger groups of statistics become available, a greater appreciation of the advantages of insulin mixtures in the treatment of properly selected patients will be created.

WILL THERE BE NEW INSULINS?

Whereas regular or crystalline insulin, alone or combined with protamine zinc insulin as separate injections or in a mixture, are now in use almost exclusively in diabetic clinics, there is hope and further search for a more satisfactory type of long-acting insulin. It would be an ideal situation if there was one insulin to meet all needs. This goal will probably never be reached

3. Peck, F. B., and Schechter, J. S.: Newer Insulin Mixtures; Follow-Up Study, Proc. Am. Diabetes A. (1944) 4: 57-86, 1945.
4. Colwell, A. R.: Nature and Time Action of Modifications of Protamine Zinc Insulin, Arch. Int. Med. 74: 331-345 (Nov.) 1944.

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because of the variation in 1 diabetic patient as compared to another, and because of the variation in any person with diabetes from time to time. However, any development of a long-acting insulin which would make it possible for more than the present percentage of insulin users to use one insulin once a day would be a distinct step forward. MacBryde [5] has probably had the most extensive experience with such insulins in the form of modifications of the present protamine zinc insulin formula. He has found that a buffered combination which contains less protamine than standard protamine zinc insulin and is known as modified protamine zinc insulin, NP-50, is the most promising. He has based his opinion on his own extensive experience and on the replies to a questionnaire which he, as chairman of the Insulin Committee of the American Diabetes Association, sent to thirteen diabetic clinics. Colwell is of the opinion that the standard protamine zinc insulin could advantageously be replaced with a long-acting insulin represented by a formula which would produce the clinical effects observed in use of the 2:1 mixture.

These are problems of clinical and manufacturing research, and when an insulin which is more satisfactory for a greater proportion of diabetics is perfected, the Toronto Insulin Committe will endorse it.

DEFINITION OF THE CRITERIA OF, AND THE NECESSITY FOR, CONTROL [6]

Much of what has been said in regard to the use of insulin is related to two questions: First, what is meant by "control of diabetes" and what criteria of control are medical practitioners willing to accept; second, is control in the defined sense necessary?

The best reason, it seems to me, for considering as acceptable any criteria of control (approach, at least, to normal blood sugar levels at all times), is that the more nearly the blood chemistry of the diabetic person is restored to normal the more normal the metabolism and the more adequate nutrition will be. Second, is control in the defined sense really necessary? It seems to me that statistics extending over many years of careful observation answer this question as well as it can be answered today. They indicate that if a sufficiently large group of diabetic patients are observed over a sufficiently long period, those whose disease is controlled in accordance with aforementioned criteria suffer less degenerative damage due to their diabetes than do those whose disease is not so managed. It will definitely advance the treatment of diabetes when specific criteria of control are standardized and universally accepted as the yardstick of effective treatment.

Finally, I wish to stress the necessity for the meticulous control of mild and early cases of diabetes, a policy which is not too conscientiously applied either by patient or physician at present. Most practitioners believe that it is only by exacting care of the mild case that there can be prevented or at least retarded the progression from mild to more serious degrees of diabetes. Use insulin too early rather than too late.

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5. MacBryde, C. M., and Reiss, R. S.: Modified Protamine Zinc Insulin: Comparison with Globin Zinc Insulin and Insulin Mixtures, J. Clin. Endocrinol. 4: 469-479 (Oct.) 1944.

6. Criteria of control: (1) To keep the urine as continuously sugar-free as possible without insulin reactions; and (2) to maintain these blood sugar levels: fasting, not less than 100 nor more than 140 mg. per hundred cubic centimeters; before lunch, not less than 100 nor more than 120 mg. per hundred cubic centimeters; two to three hours after lunch, not over 200 mg. per hundred cubic centimeters.

THE ROLE OF DDT IN CONTROLLING INSECT-BORNE DISEASES OF MAN

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In reviewing the diseases of mankind one is impressed by the number of major infections that are transmitted by insects. It is apparent that the most prominent of those diseases are the dysenteries, malaria, the rickettsial diseases in the typhus group, plague, leishmaniasis, trypanosomiasis of Africa and of the Americas, filariasis, pappataci sandfly fever, dengue, encephalitis and encephalomyelitis, possibly poliomyelitis, and a number of other diseases of lesser importance. It is also evident that the causes of these diseases include bacterial, protozoal, nematode, rickettsial and virus agents. The transmitting processes include mechanical transfer as well as complicated intermediate development and propagation of the infectious agent in the insect vector.

This percursory review indicates the importance of controlling or eliminating certain insects in the prevention of human diseases. The United States is fortunate in that it is geographically located where most serious insect-borne diseases have seasonal interference with their transmission and also in that it possesses sufficient resources to allow man to wage a successful and incessant war on harmful and pest insects. While these conditions prevail in the United States, commitments of the armed forces require them to operate in many places throughout the world and far removed from the protected environment which has been developed at home. For these reasons the Medical Department of the Army has had a primary interest in the development of better ways to control insect-borne diseases. Early in 1941 in anticipation of the disease problem that would be encountered, this interest, backed by financial support, material and experienced personnel, led to the formation of an efficient team for the study of insect-borne diseases and the development of practical means for their control. At the Army's request, the Bureau of Entomology, U. S. Department of Agriculture, in conjunction with the Food and Drug Administration and the National Institute of Health, U. S. Public Health Service, began a systematic search for better insecticides and for more effective means to employ those already available. Field tests of promising products were made by the Army, the Navy and Rockefeller Foundation. These studies were coordinated by the National Research Council and later supported by the Committee on Medical Research of the Office of Scientific Research and Development. This combination of talent made it possible to screen a large number of insecticides and repellents, to select the more promising, to determine their toxicology, to explore the feasibility of their manufacture for military or civilian use and within a relatively short period of time to make adequate field tests of the selected products. Subsequent events have proved the worth of this approach to the problems of insect-borne disease. The nation now has within its grasp not only means to effectively control louse and flea-borne typhus fevers and the fly transmissions of the dysenteries but also improved methods for controlling malaria, leishmaniasis, dengue, pappataci fever and filariasis. Progress has been made in controlling mite-borne diseases, and a lead has been obtained on how to control plague. There must be a continuation and extension of these efforts, and soon it should be

possible for human beings to live in all parts of the earth without fear of insect-borne diseases.

In the past it has been possible to control insects only in a limited way. This was due to the fact that when nonpersistent agents are employed it is necessary to repeat insecticidal work at intervals of not over five to seven days in order to destroy newly emerged broods that were not affected by previous work. In attempting to control or eliminate an insect from the environment, it is necessary to have a persistent insecticide. If the agent is nonpersistent, then persistency must be simulated by frequency of application. This method of attack not only kills the adult insects and larvae already present but also is a constant destructive agent for subsequently emerging adults, nymphs or larvae.

Early studies made by the Bureau of Entomology, U. S. Department of Agriculture, attempted to solve this problem by the use of antioxidants to stabilize pyrethrum preparations, the use of activators to increase the rate of kill and to decrease the lethal dose, the addition of more stable chemicals, such as rotenone and the thiocyanates. These efforts were partially successful and antilouse powders were produced with insecticide persistency up to fourteen days if applied as a dust and up to three months if high concentrations were impregnated into a fabric. Less persistency of contact insecticidal action was obtained in other fields.

These results were considered a promising but not a satisfactory answer, consequently the search was continued. This ultimately led to the examination of the compound now commonly known as DDT (4,4'-dichlorodiphenyltrichloroethane). It was first synthesized by a German chemist in 1874 and was patented as an insecticide in Germany in 1934. It is a crystalline white solid with a tendency to agglomerate and cling to a surface. As ordinarily obtained it is tasteless and possesses a faint aromatic odor of chlorbenzine. It is insoluble in water but soluble in oils and certain organic solvents. It is relatively stable chemically in the presence of light, heat and moisture.

In 1939, J. R. Geigy, Inc. of Basle, Switzerland investigated its insecticidal properties for the control of clothes moths and certain agriculture pests. They also noted some of its residual insecticidal action after its application to a surface. During December of 1942 and early in 1943, studies conducted at the Bureau of Entomology, U. S. Department of Agriculture Laboratory at Orlando, Fla., confirmed the Swiss work and extended the information on the use of DDT as an insecticide with long lasting residual effect. This information was immediately applied to the development of materials and methods for the control of lice, mosquitoes, flies, fleas, sandflies, mites, bedbugs, cockroaches, clothes moths and many other insects of economic importance. Its limitations in the control of ticks and other arachnids were soon discovered.

As little work had been done on the toxicology of DDT for man and animals, extensive work had to be completed prior to its adoption by the armed forces. By June 1943 the Food and Drug Administration, the National Institute of Health and the Kettering Laboratory, University of Cincinnati, were able to supply sufficient information on the toxicology of the preparation to allow the armed forces to request its manufacture in large quantity. This was indeed fortunate, for with the world shortage of pyrethrum there was great need of a good insecticide. The principal ingredients required for its manufacture were alcohol and chlorbenzine. These items, although on the critical list, were available in quantity in the United States. Subsequently, sufficient DDT was manufactured, distributed and utilized by the armed forces to aid in the control of typhus fever in Europe, Africa, Japan and Korea, and of malaria in the Pacific, Mediterranean, African, Indian and Caribbean areas, as well as to contribute to the control of the dysenteries, dengue, sandfly fever and other insect-borne diseases encountered by U. S. troops. The materials and methods developed are applicable to civilian as well as military use. Thus the necessity of war has contributed materially to peacetime living.

In using DDT as an insecticide, it must be remembered that it is slow to act, with a knockdown varying from a few minutes to more than one hour; most insects showing evidence of DDT poisoning die, and its chief advantage over other insecticides is that on proper application to a surface it continues to be a potent contact insecticide for as long as three or four months. This latter property obviously has great significance in any insect control program.

Various means have been devised to apply DDT. These include oily sprays using solvents, such as kerosene; dusts utilizing inert diluents, such as talc; aerosols using gas under pressure for their formation; water emulsions made from a solution of 20 per cent DDT dissolved in a proprietary formaldehyde-containing soft soap plus a wetting agent; and wettable DDT sprayed from a water suspension. The object of all methods of application is to leave a residue on the sprayed area, and good insect control should not be expected unless the user adheres to this principle.

For the control of adult flies a residue of 100 to 200 mg. per square foot should be applied to surfaces where flies commonly rest, such as the sides of buildings, walls and screens. Such a residue is obtained when a 5 per cent DDT solution in kerosene is applied in a coarse spray to a surface in the amount that makes wetting evident. This same method of application is useful in the control of mosquito-borne diseases transmitted from man to man. The mosquito taking a blood feed usually rests on a nearby wall prior to or after the blood feed. Contact with a DDT-sprayed wall for twenty seconds to two minutes is usually sufficient for the insect to absorb fatal amounts of the compound.

DDT's value in the control of louse-borne typhus fever is due to the fact that when a dust or emulsion of it is applied to clothing that is not subsequently washed, it remains as an effective insecticide for a period of at least one month. Adult lice or nymphs are soon killed, and any lice that subsequently hatch or are picked up from other sources meet the same fate. Because of the ease of application and the long continued action, it is feasible to reduce the louse infestation of large populations to levels where typhus fever will not be transmitted. Because of its slow knockdown for lice, it is not recommended for treatment against crab lice and head lice. A combination of DDT and pyrethrums should be used for this purpose. Fleas can be controlled in human environments with the same methods utilized for lice if, in addition, the floors, including rugs, of all human habitations involved are sprayed with DDT. This procedure has great promise in the control of plague.

Sandflies can be controlled by a residual spray applied around the windows and doors of buildings. This acts as a lethal barrier for sandflies attempting to enter

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a building. For pest insects, such as the cockroach and bedbug, DDT gives the best control that has been obtained to date. This is due to the long lasting residual effect which continues to kill emerging nymphs that subsequently hatch from previously deposited eggs. This latter factor has been responsible for most of the failures with other types of insecticides.

With the demonstrable great toxicity of DDT for many species of insects, it should be obvious that toxicity for mammals would also exist. Nevertheless, in spite of its extensive use as an insecticide, no clear-cut cases of human poisoning due to DDT have been seen in the United States. Dr. Paul A. Neal of the National Institute of Health has expressed the opinion that in cases studied to date the toxic manifestations have been due to the solvent and not to the DDT itself. He emphasized that symptoms produced by solvents, either locally or systemically, set in rather promptly, whereas those symptoms produced by DDT develop only after a latent period of several hours.

An idea of the relative toxicity of DDT for laboratory animals can be gained from the fact that the lethal oral dose in olive oil varies from 240 mg. per kilogram of body weight for rats and 300 mg. for cats and rabbits to over 1,000 mg. for goats. Due to differences in the absorption and fat content of the animal, there is considerable variation in the size of the lethal dose for individual animals within a species. Young animals have been found to have increased susceptibility.

DDT in the form of a dry powder is nonirritating and apparently not absorbed through the skin, and its absorption in the gastrointestinal tract is variable, depending on the presence of fats or other solvents. It is capable of slow absorption through the skin if applied in oily solution. Animals that tend to lick themselves may get increased absorption by the ingestion of DDT materials applied to the fur or skin.

The symptomatology manifested by animals suffering from experimental DDT poisoning is characterized by hyperexcitability, nervousness, tremors, chronic convulsions and coma. The site of action in mammals appears to be in the central nervous system. The type of convulsion encountered in acute DDT poisoning resembles that seen in strychnine poisoning, in that it can be elicited by irritation and mechanical stimuli such as jarring. In sublethal amounts recovery is usually complete without residuums, and there appears to be no important lasting damage to any body tissue or organ. In both animals and man the organic chlorides of the urine have been found to be increased subsequent to the ingestion of DDT. The Division of Pharmacology, Food and Drug Administration, and the U. S. Department of Agriculture have shown that DDT is partially stored in the fats of the body and is gradually eliminated in bile, feces and urine in the form of 2,2 bis (p-chlorophenyl) acetic acid or other metabolites. It is also excreted in the milk, which may be of significance if DDT is used as an insecticide on forage crops. It must be pointed out that with reasonable agricultural control the likelihood of anyone ingesting toxic amounts of contaminating DDT are extremely small, and that dangers from DDT are probably much less than those from nicotine sulfate, arsenical insecticides, sodium fluoride or solvents such as carbon tetrachloride. In spite of this fact, it is extremely wise to be fully informed about the toxicology of DDT, so that maximum use can be made of this fine insecticide. The fund of knowledge on the toxicology of DDT is unique in that most of it was worked out before the product was released as an insecticide for the armed forces and the general public.

There is no specific antidote for DDT poisoning, but the use of phenobarbital has been extremely helpful in controlling DDT convulsions occurring in experimental animals. It is fortunate that toxicology studies of DDT have and are paralleling investigations on its insecticidal properties in all fields of insect control. The work of the Bureau of Entomology, U. S. Department of Agriculture, the Food and Drug Administration, the Public Health Service, The Fish and Wild Life Bureau of the Department of the Interior and the Chemical Warfare Service Laboratories at Edgewood Arsenal, Maryland, coupled with contracts and field work of the Medical Department, the Quartermaster Corps and the Corps of Engineers, the U. S. Army, the U. S. Navy and various civil agencies, have and are still adding to the store of information needed to properly exploit DDT for man's benefit.

CONCLUSION

From the data available on DDT (4,4'-dichlorodiphenyltrichloroethane), the following conclusions may be drawn:

1. Its outstanding property is that in proper concentration, in a dispersed state, it continues to be a potent contact insecticide for several months.

2. It is a weapon of major importance which can be used to solve many problems of insect control.

3. It is relatively safe from the toxicologic point of view, and cases of DDT poisoning in human beings are not likely to occur when it is used as a household insecticide.

PORPHYRIA WITH EPIDERMOLYSIS BULLOSA

Report of a Case of the Tardive Congenital Type with Demonstration of Latent Porphyria in a Sister of the Patient

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Bullous eruptions simulating epidermolysis bullosa, in which the exposed surfaces are sensitive to light, occur in association with porphyria and may represent the presenting symptoms of the disorder. Turner and Obermayer [1] described such a case of epidermolysis bullosa, with melanosis and hypertrichosis as well, and in a detailed survey of the literature and a discussion of the chemistry of the problem, listed 14 similar cases. They also reviewed 200 cases of hydroa and found that in 86 instances of the more severe type, hydroa vacciniforme, there was associated porphyria.

Porphyria is recognized as that rare, familial, metabolic fault in which abnormal kinds and amounts of porphyrins, especially uroporphyrin, are excreted in the urine and feces. The disease may be latent or asymptomatic for years, with or without the characteristic coloration of the urine. Surveys of families in which porphyria occurs may disclose the presence of uropor-

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1. Turner, W. J., and Obermayer, M. E.: Studies on Porphyria: II. A Case of Porphyria Accompanied with Epidermolysis Bullosa, Hypertrichosis and Melanosis, Arch. Dermat. & Syph. **37**: 549-572 (April) 1938.

phyrin or the colorless porphobilinogen in the urine of apparently normal persons. Porphyria finds clinical expression in various forms: The acute type with intermittent episodes of serious gastrointestinal or nervous symptoms; the congenital type, which may begin in earliest childhood with red urine, erythrodontia, photosensitive skin and sometimes visceral complications, and intermediate types, which may belong to one or the other. For a general review of porphyrins the reader is referred to comprehensive discourses on the subject.[2] Reports indicate that the syndrome of acute porphyria is more common than is generally supposed.[3]

It was in the investigation of the classic case of congenital porphyria of Petry that Fischer[4] in 1915 established the groundwork of our present knowledge of porphyrins. He found that the urine and feces contained porphyrins which were distinct from hematoporphyrin; the urinary porphyrin he named uroporphyrin, the fecal porphyrin, coproporphyrin. These compounds exist in nature in the form of isomers I and III, the identification of which depends chiefly on the determination of the melting points of their respective methyl esters. The porphyrin isolated from the urine by Waldenström, and probably erroneously identified as uroporphyrin III, predominates in cases of acute porphyria; much of it is present as the zinc complex.[5] In cases of acute porphyria, in the active or latent phase, porphobilinogen can be demonstrated in the urine by a simple test.[6] Uroporphyrin I has chiefly been identified with cases of congenital porphyria, and porphobilinogen is absent. Such distinctions are not clear-cut, however, for exceptions occur; in view of the recent work of Watson and his collaborators[7] it is doubtful that the type of clinical manifestation is dependent on the type of isomer excreted in the urine or feces.

Sensitivity to light occurs more commonly in the congenital types of porphyria than in other types. Waldenström[2b] emphasized that in his extensive experience with acute porphyria in Scandinavians he had not encountered any instances of congenital porphyria and while, in his cases, pigmentation frequently occurred, there had been no instance of photosensitivity. He reviewed the observations of others on cases in which bullous eruptions and abdominal colic appeared in conjunction with porphyria and concluded that they were examples of the congenital type which he termed "porphyria cutanea tarda." The cases presented by Merkelbach[8] and, recently, by Taylor and his associates,[9] in which bullous reactions simulating epidermolysis bullosa occurred in association with abdominal colics, suggest the syndrome of acute porphyria although porphobilinogen was not recognized in the urine, and the type of uroporphyrin was not identified.

Nesbitt and Watkins[2b] reported an instance of photosensitivity of the bullous and urticarial type in the case of a young woman 20 years of age who had classic symptoms of acute porphyria, abdominal pains, jaundice and psychotic behavior. The urine revealed large amounts of coproporphyrin and uroporphyrin, the latter largely as the zinc complex. Tests of the blood gave strongly positive reactions for porphyrins. Death occurred two years later, and at necropsy there was found extensive degeneration of the liver with decided pigmentation of the Kupffer cells, as well as a gross pinkish tinting of the costal cartilages.[10]

The recent literature on light-sensitive eruptions has been summarized by Epstein[11] in 1939 and by Stokes and Beerman[12] in 1942. In the chapter on photosensitization by porphyrins in Blum's[13] excellent monograph on "Photodynamic Action and Diseases Caused by Light," the author reviewed the many attempts that have been made to reproduce by artificial means the cutaneous lesions of hydroa and epidermolysis bullosa. Except for a few equivocal exceptions, these experiments have been unsuccessful. Various explanations have been offered to account for these failures. Hydroa and epidermolysis bullosa, with or without porphyria, possess a number of factors in common, one of which is the sensitivity of the skin to trauma. It has been suggested that either the porphyrins may affect such altered skin to make it sensitive to light or there may be an indirect effect due to light itself. Even in cases of pronounced porphyrinuria there may be few or no demonstrable porphyrins in the blood stream, and the skin may remain unaffected. Granted that there is a certain correlation between bullous eruptions, photosensitivity and porphyria in animals and in man, still it is not proved that the production of bullae on the exposed surfaces is due to the photodynamic action of porphyrins in the skin.

Little is known concerning the factors which may precipitate the syndrome of porphyria or influence its course one way or the other. In most instances of acute toxic porphyria, drugs of the sulfonmethane type have been incriminated. In diseases of the liver, such as cirrhosis or after poisoning caused by lead or by chronic alcoholism the excretion of porphyrins is decidedly increased in the urine and feces.[14] Attempts have been made to treat porphyria by the use of liver extracts, but these have not given convincing results.

2. (a) Mason, V. R.; Courville, C. B., and Ziskind, E.: Porphyrins in Human Disease, Medicine **12**: 335-439 (Dec.) 1933. (b) Waldenström, J.: Studien über porphyrie, Acta med. Scandinav. (supp.) **82**: 1-234, 1937. (c) Watson, C. J.: The Porphyrins and Their Relation to Disease: Porphyria, in Christian, H. A.: Oxford Medicine, New York, Oxford University Press, 1938, vol. 4, pt. 2, chap. 9 A, pp. 1-34. Dobriner, K., and Rhoads, C. P.: The Porphyrins in Health and Disease, Physiol. Rev. **20**: 416-468 (July) 1940. Watson, C. J.: Porphyria, South. M. J. **36**: 359-363 (May) 1943.

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4. Fischer, H., cited by Turner and Obermayer.[1]

5. Watson, C. J., and Schwartz, S.: The Excretion of Zinc Uroporphyrin in Idiopathic Porphyria, J. Clin. Investigation **20**: 440-441 (July) 1941.

6. Watson, C. J., and Schwartz, S.: A Simple Test for Urinary Porphobilinogen, Proc. Soc. Exper. Biol. & Med. **47**: 393-394 (June) 1941.

7. (a) Grinstein, M.; Schwartz, S., and Watson, C. J.: Studies of the Purification of Uroporphyrin I and the Nature of Waldenström's Uroporphyrin, as Isolated from Porphyrin Material, J. Biol. Chem. **157**: 323-344 (Jan.) 1945. (b) Watson, C. J.; Schwartz, S., and Hawkinson, V.: Studies of the Uroporphyrins: II. Further Studies of the Porphyrins of the Urine, Feces, Bile and Liver in Cases of Porphyria, with Particular Reference to a Waldenström Type Porphyrin Behaving as an Entity on the Tswett Column, J. Biol. Chem. **157**: 345-361 (Jan.) 1945.

8. Merkelbach, O.: Porphyrie I (cutane und abdominelle Form), Schweiz. med. Wchnschr. **73**: 1182-1184, 1943.

9. Taylor, I. J.; Solomen, M. L.; Weiland, G. S., and Figge, F. H. J.: Chronic Porphyria, J. A. M. A. **131**: 26-29 (May 4) 1946.

10. Berg, M.: Acute Porphyria: Clinical and Pathologic Observations, Arch. Int. Med. **76**: 335-340 (Nov.-Dec.) 1945.

11. Epstein, S.: Allergische Lichtdermatosen, Dermatologica **80**: 291-320, 1939.

12. Stokes, J. H., and Beerman, H.: Photodynamic Effects in Dermatology: I. Am. J. M. Sc. **203**: 608-623 (April) 1942; Photodynamic Effects in Dermatology: II., ibid. **204**: 601-624 (Oct.) 1942.

13. Blum, H. F.: Photodynamic Action and Diseases Caused by Light, New York, Reinhold Publishing Company, 1941, pp. 211-238.

14. Nesbitt, S.: A Quantitative and Qualitative Study of Porphyrin Metabolism: I. Introduction; II. Porphyrin Excretion in Hepatic Disease; III. a Study of Acute Porphyria; Presentation of Three Cases, Thesis, Graduate School, University of Minnesota, Minneapolis, September 1940.

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Dobriner and his associates [15] reported a quantitative reduction in the excretion of coproporphyrin in 3 children with congenital porphyria who were given such therapy.

In this paper we wish to report a case of epidermolysis bullosa, melanosis and hypertrichosis in association with porphyria, presumably of the congenital type, in which the tardive cutaneous reactions appeared late in life as the presenting symptoms of the disorder. Latent porphyria was demonstrated in the case of the patient's sister, who was apparently normal in other respects.

REPORT OF CASE

A woman aged 58 was admitted to the Mayo Clinic on Nov. 3, 1944 because of a decline in health and vigor over a period of eighteen months. During this time there had been a loss of 40 to 50 pounds (18.1 to 22.7 Kg.). In the spring of 1943, a blistering eruption had appeared on the exposed surfaces of the hands and the ankles, and this had persisted off and on until the time of admission. It was particularly pronounced after exposure to the bright summer sunlight.

Previous to the present illness, the patient's general health had been good. Both parents were dead. Three brothers had died of tuberculosis and one of ulcers of the stomach; one sister was living and well. The patient had been married twenty-five years, and there were four children living and well. In 1916 the left ovary and tube and the appendix had been removed. Four years prior to admission, the menopause had occurred without incident.

(Subsequent information was obtained in regard to the past history of the patient. She had been subject to spells of depression and for some years had imbibed considerable quantities of alcohol.)

In February 1943 it was observed that the skin of the dorsa of the hands, the forearms and the dorsa of the feet and ankles would blister readily under slight trauma, a condition which was aggravated by exposure to the sun throughout the next several months. Always of fair complexion, the patient had noted a gradual darkening of the color of the skin, most intense on the exposed portions of the face and neck. About the same time, she became aware of a downy growth of hair on the cheeks and upper lip, and bristles appeared on the chin. On the dorsa of the hands, patches of whitish decoloration appeared, and there were accumulations of small, yellowish white particles under the surface of the skin.

In May 1944, subsequent to a short period of dizziness, there was observed a transient weakness of the right arm. There was occasional tenderness of the smaller joints of the hands and fingers and of the right ankle.

During the eighteen months previous to admission, there had been an increasing sensation of fatigue, anorexia and a sensation of rapid aging. The weight dropped from a normal level of approximately 168 pounds (76.2 Kg.) to a low level of 117 pounds (53.1 Kg.) in December 1943.

The patient was under observation in the clinic on three occasions, in November 1944, in April 1945 and in November 1945. The general physical examination did not reveal significant abnormalities except in the smaller joints of the hands and in the skin. The cardiovascular system was apparently normal; the blood pressure was 124 mm. of mercury systolic and 88 diastolic. Neither the liver nor the spleen could be palpated. Pelvic examination revealed no pathologic conditions.

The scleras were slightly injected and tinted a faint yellow color. Ocular fundi revealed normal disks; the retinal arterioles were narrowed slightly. The mouth was edentulous. The tongue was normal.

On first inspection, the features indicated a person older than the stated age. The hair was streaked with gray; there was general hyperpigmentation; the skin of the face and neck was somewhat purplish in hue and thickened in texture, and the normal markings were exaggerated. There was a downy fuzz on the skin of the cheeks and upper lip; over the chin there was a scattering of stiff bristles. The smaller joints of the hands were stiffened and the right hand could not be closed. There was some disability in movement of the right wrist, and there was a slight swelling of the left ankle. The skin on the dorsa of the hands showed a mild degree of vitiligo, and there was a scattering of milia over the knuckles. On the dorsa of the hands and feet there were remnants of large, denuded vesicles, not associated with erythema. Friction on the adjacent skin provoked a positive Nikolsky sign. There were a few small unruptured vesicles as well as excoriations on the ankles.

The preliminary laboratory tests were as follows: The routine urinalysis showed no significant abnormalities. The concentration of hemoglobin was 14.2 Gm. per hundred cubic centimeters of blood; erythrocytes numbered 4,490,000 and leukocytes 8,100 and 7,200 respectively per cubic millimeter of blood. The Kline flocculation reaction for syphilis was negative. A roentgenogram of the thorax revealed no abnormalities. Roentgenograms of both wrists and both hands disclosed no evidence of arthritis, but there was a mild degree of osteoporosis. The concentrations of urea and uric acid in the blood were normal. The sedimentation rate of the erythrocytes by the Westergren method was normal. The basal metabolic rate was —6 per cent. Examination of the stools did not reveal parasites or ova. Examination of the liver by the sulfobromophthalein test showed a mild degree of retention of dye, graded 1 (on a basis of 1 to 4, in which 1 designates the least and 4 the greatest retention). The serum contained 0.8 mg. of indirect bilirubin per hundred cubic centimeters; there was no direct reaction.

Preliminary diagnostic considerations centered about the possibility of subacute disseminated lupus erythematosus, dermatomyositis and epidermolysis bullosa. Because of the history of recurring bullae with trauma and of exposure to sunlight affecting the exposed surfaces of the extremities, the urine was examined for porphyrins. There was no previous intimation of discolored urine.

A twenty-four hour specimen of urine collected on Nov. 9, 1944, showed a reddish color which deepened on standing to a port wine hue. Tests for porphobilinogen were negative. There was strong primary fluorescence. The twenty-four hour specimen of urine, totaling 550 cc., contained 2.82 mg. of coproporphyrin, and 18.5 mg. of uroporphyrin. The ether-insoluble porphyrin showed absorption bands with maxima at 532 and 574 millimicrons, which are characteristic of uroporphyrin metal complex. Addition of hydrochloric acid caused these maxima to shift to 550 and 593 millimicrons. In 25 per cent solution of hydrochloric acid the maxima of uroporphyrin are given as 554 and 597 millimicrons.

The specimen of urine collected on Nov. 15, 1944 contained 2.0 mg. of coproporphyrin and 11.4 mg. of uroporphyrin. On Nov. 20 and Dec. 8, 1944 the urine was examined qualitatively. The color appeared normal. There was a definite but not a strong degree of fluorescence. The specimen of Dec. 8, 1944 was estimated to contain approximately 1 to 2 mg. of porphyrins.

The ether-insoluble porphyrin contained in the first specimen of urine was isolated and esterified, and the methyl ester was crystallized from chloroform-methanol. The first crop weighed 8.2 mg. A second small crop softened over a range of temperature and finally melted at about 210 C. A third crop of 0.48 mg. melted at 260 C. After recrystallization the first crop melted at 283-285 C. and was considered to be uroporphyrin I methyl ester. Grinstein, Schwartz and Watson [16] gave a melting point of 284 C. for this ester.

Two stool specimens were examined and an ether-insoluble porphyrin (uroporphyrin) was isolated. The amount was too small for adequate purification. The melting point of the best crystals was about 210 C. Coproporphyrin appeared to be present in traces but could not be identified. A chloroform-soluble porphyrin was present, either deuteroporphyrin or protoporphyrin, or a combination of the two.

15. Dobriner, K.; Strain, W. H.; Guild, H., and Locallio, S. A.: The Excretion of Porphyrins in Congenital Porphyria, J. Clin. Investigation **27**: 761-764 (Nov.) 1938.

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A twenty-four hour specimen of urine was examined for 17-ketosteroids and found to contain 1.3 mg., well below the limits of normal. No porphyrins were detected in the blood serum; there was no methemoglobinemia.

At this time, the patient's sister presented herself for discussion of the problem. She was in her middle fifties and had always been in excellent health. Her complexion was blond, her hair was white and she stated that the patient and she, until 1942, had been of similar complexion. The difference in appearance of the two sisters was striking. The urine of the sister was examined on Nov. 20, 1944. It was of normal color but possessed a strong degree of primary fluorescence; the test for porphobilinogen gave negative results. Coproporphyrin, 1.6 mg. was present, as was an ether-insoluble porphyrin in an amount too small for quantitative determination. The ether-insoluble porphyrin was concentrated by adsorption on superfiltrol, and its absorption in 25 per cent solution of hydrochloric acid was determined. Maximal bands of absorption were found at 552 and 593 millimicrons. It was possible to prepare and crystallize the ester of this small amount of porphyrin. The methyl ester melted at 271 C., a fact which indicated that it was largely uroporphyrin I. The amount was too small for further crystallization.

At a later date, the patient's daughter, an apparently healthy young woman in her twenties, presented herself for examination. A twenty-four hour specimen of urine was examined and found to contain normal amounts of coproporphyrin, but there was no primary fluorescence. There was no evidence of porphobilinogen.

EXPERIMENTAL DETAILS OF THE ANALYSIS OF URINE AND FECES FOR PORPHYRINS

I. The Patient.—Urine: One twenty-four hour specimen of urine was obtained with a volume of 550 cc. After addition of 60 cc. of acetic acid, it was extracted three times with 250 cc. of ether. The urine residue was adjusted to p_H 3.7 and allowed to stand for three days. The porphyrin which precipitated was filtered out and dried on the filter paper. It was removed from the paper with pyridine, which was then evaporated in a stream of air. The residue was suspended in dry chloroform containing a little methanol and treated with an excess of diazomethane in ether. The porphyrin dissolved quickly, which indicated a rapid formation of the methyl ester. After being allowed to stand overnight, the solvents were evaporated on the steam bath, and the residue was recrystallized from chloroform-methanol. The first crop of 8.2 mg. melted at 275-285 C. After a second recrystallization it melted at 283-285 C. (corrected), which is the melting point of uroporphyrin I. The second crop was extremely small and melted at about 210 C. The third crop of 0.48 mg. melted at 260 C.

Stool: Two stool specimens were combined and treated with acetone. The stool was then extracted repeatedly with methanol containing hydrochloric acid. After removal of the methanol under reduced pressure, the aqueous residue was allowed to stand overnight. It was then diluted and extracted with chloroform, which removed most of the porphyrin. The aqueous residue was neutralized to Congo red with sodium acetate and extracted with ether. The porphyrin in the ether was taken into 1 per cent solution of hydrochloric acid, and the acid solution was extracted with chloroform, which removed all the porphyrin. This fraction was not studied further. The acetone extract of the stool was evaporated to dryness. The residue was taken up in water and extracted with ether and acetic acid. The aqueous residue was combined with the aqueous solution remaining after extraction with chloroform and ether, and the p_H was adjusted to about 2.7. After the aqueous solution had stood overnight the precipitate was filtered out, dissolved in 5 per cent solution of hydrochloric acid and again precipitated. It was then dried and esterified with diazomethane. The methyl ester was extremely difficult to crystallize, but a few crystals were obtained, which melted at about 210 C. The properties of this fraction indicated that it was uroporphyrin, but there was too little to permit identification of isomers.

II. The Patient's Sister.—Urine: One twenty-four hour specimen of normal colored urine was available. The porphyrins were adsorbed on superfiltrol after the addition of hydrochloric acid and then eluted with dilute ammonia. The eluate was acidified to litmus with acetic acid and 20 cc. more of glacial acetic acid was added. After extraction three times with an equal volume of ether, the aqueous residue was adjusted to p_H 3.7. Since no precipitate appeared on standing, the solution was acidified, and the porphyrin again was adsorbed on superfiltrol and eluted with 2.5 per cent solution of ammonia. This time a precipitate appeared after adjustment of the p_H to 3.7 and allowing the solution to stand overnight. It was filtered out on a small pad of infusorial earth. The pad was then washed with a few cubic centimeters of pyridine, which dissolved the porphyrin. The pyridine was removed in a stream of air. The residue was leached with dilute hydrochloric acid, which dissolved the porphyrin and left considerable brown material undissolved. Sodium acetate was added to the hydrochloric acid solution until Congo red paper gave a blue gray color. It was then extracted twice with ethyl acetate, which removed all the porphyrin, leaving most of the brown color in the aqueous phase. The ethyl acetate was extracted twice with 5 cc. of 25 per cent solution of hydrochloric acid. After neutralization to Congo red with sodium acetate, extraction with ether failed to remove any porphyrin from the aqueous phase. Hydrochloric acid was added until the solution gave a blue gray color with Congo red paper. The porphyrin was then extracted with ethyl acetate. The solvent was evaporated, and the residue was esterified with diazomethane. Recrystallization of the ester twice from chloroform-methanol gave a few crystals which melted at 271 C. Since this melting point is higher than that of the Waldenström porphyrin, it was considered to be indicative of slightly impure uroporphyrin I methyl ester.

FURTHER CLINICAL COURSE

Based on these observations, a diagnosis of porphyria was made. This was considered to account for the systemic symptoms and the changes in the skin, including the picture of pseudo epidermolysis bullosa with apparent photosensitivity, milia, melanosis and hypertrichosis. In view of the tinted scleras and the slight evidence of hepatic dysfunction, a program was instituted similar to that which is advised in the treatment of cirrhosis. A diet was prescribed which was high in caloric and vitamin content, high in protein and carbohydrates and low in fats. Vitamin supplement of the B complex was added.

Tests were made of the skin of the forearms and back to determine evidence of photosensitivity. The skin of the back and forearms was exposed to erythema doses of radiation from four sources, quartz mercury vapor lamp, carbon arc lamp, infra-red Mazda bulb and natural sun. Exposure was made directly and through filtration including ordinary window glass and four selective spectral filters.[16] The result of these experiments indicated no abnormal reaction to light except a mottling in the areas exposed to the infra-red source with a faint erythema of the skin with the B carbons. The patient was later given measures of physical therapy to the hands for the distress in the joints. On exposure to mild radiant heat there was no untoward reaction of the skin.

Reexamination of the patient in April 1945 indicated an improvement of general health. The color of the face was somewhat lighter; there was good appetite, and there had been a gain of weight to 134 pounds (60.8 Kg.). There had been no further blistering of the skin under trauma or after exposure to the sun.

Examination of the urine revealed 3.32 mg. of uroporphyrin in a twenty-four hour specimen. The sulfobromophthalein dye test for hepatic function showed no retention of the dye.

Reexamination in November 1945 showed a still further degree of improvement in the hue of the skin. There had been no further episodes of bullous eruption. Examination of the urine showed no porphobilinogen; there were 2.16 mg. of

16. McLoughlin, C. J., and Krusen, F. H.: A Practical Skin Test for the Study of Photosensitivity, Proc. Staff Meet., Mayo Clin. **16**: 478-480 (July 23) 1941.

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coproporphyrin and 9.4 mg. of uroporphyrin in a twenty-four hour specimen. A test for hepatic function showed no retention of the dye.

During the summer of 1945 there had developed episodes of mild, jacksonian-like attacks, involving first the lower extremities, and subsequently the right arm as well. At the same time, there were spells of transitory motor aphasia. Neurologic examination did not reveal any localizing signs to account for this disturbance. The blood pressure was normal; a roentgenogram of the skull was negative; the electroencephalogram revealed dysrhythmia. It was tentatively considered that the jacksonian episodes were on some obscure vascular basis, and a program of sedation was prescribed. Instead of barbiturates, the patient was given bromides by mouth, and a moderate degree of improvement ensued. In the course of several months on this regimen, the symptoms of jacksonian episodes improved, but there developed a transient episode of mental confusion and difficulty in walking, which was found to be on the basis of bromism.

COMMENT

Late in the course of the patient's examination, information came to us from an outside source that there had been a chronic overuse of alcohol for a number of years preceding the onset of the present illness. This was reflected in the evidence of disturbed hepatic function and decline in health and confirmed our decision to emphasize in the course of treatment those procedures which have been recommended for the protection of the liver in the management of hepatic cirrhosis.[17] Under this program there resulted amelioration of symptoms and improvement of the general health.

One may conjecture on the influence of alcoholism and hepatic dysfunction toward the precipitation of latent porphyria into the clinical phase of the disease, as in this case with symptoms of photosensitivity and epidermolysis bullosa, for the liver is concerned in the metabolism and excretion of porphyrins. Notwithstanding improvement of the general health of our patient, on several occasions during the course of a year a relatively large amount of uroporphyrin was found in the urine.

The predominance of uroporphyrin I and the absence of porphobilinogen, considered in the light of the symptoms reported, suggest strongly that this represents a case of congenital porphyria in which the disease had remained dormant until late in life. The presence of uroporphyrin I and increased amounts of coproporphyrin and the absence of porphobilinogen in the urine of the patient's sister, who exhibited no clinical symptoms of porphyria, support this view and bring out the familial aspects of the disease.

Failure to reproduce the cutaneous symptoms by exposure of the skin to artificial irradiation or by natural sunlight is consistent with the experience of other workers in this field.

SUMMARY

Cutaneous signs of epidermolysis bullosa, melanosis and hypertrichosis were the presenting symptoms in a case of porphyria, presumably of the tardive congenital type, occurring in a 58 year old woman who had hepatic dysfunction and a history of alcoholism. Latent porphyria was demonstrated in a sister of the patient. An ether-insoluble porphyrin identified as uroporphyrin I was recovered from the urine and, in small amounts, from the feces. Reactions of photosensitivity could not be artificially reproduced. The general health of the patient improved under an anticirrhotic regimen.

17. Snell, A. M.: Portal Cirrhosis, California & West. Med. **63**: 74-78 (Aug.) 1945.

ABSTRACT OF DISCUSSION

DR. CLEVELAND J. WHITE, Chicago: The title of this excellent treatise with detailed case report is well chosen. While this paper leaves little for discussion, it does provoke a few clinical speculations. Porphyria is uncommon, but it behooves one to search more often for it, especially when such bullous lesions appear, especially on the exposed parts. This patient had bullous lesions; also the dorsal surfaces of the feet and ankles were affected. Their experiments with irradiation of various sources of ultraviolet rays producing no similar lesions shows that there may be additional factors besides the porphyrins of these types demonstrated to be the cause of the bullous lesions. These experiments, along with the findings of Blum and his associates, in hydroa vacciniforme show that the porphyrins apparently are not the photosensitizing agents involved in the production of skin lesions, as many previously thought was the case. It is known that the output of coproporphyrin type I is much increased in cirrhosis due to cinchophen, and similar drugs, also in hemolytic jaundice, pernicious anemia and congenital porphyrinuria. Type III is mainly increased in lead poisoning and in atropic and pigmentary cirrhosis of the liver. The supposed effect of uroporphyrin anuria in producing excessive sensitivity to light and producing skin lesions will have to be reevaluated. As well demonstrated, this is undoubtedly a case of congenital porphyria of the tardive type, the other two types having been well ruled out. An interesting feature, besides the epidermolysis bullosa type of lesions, is the presence of a widespread melanosis. It is rarely if ever seen in the congenital epidermolysis bullosa and was not found in a case recently studied. The association of hypertrichosis and melena is difficult to assay. I should like to ask Dr. Brunsting his opinion, whether he thinks they are incidental or probably a definite pair of this syndrome. The authors have further investigated the porphyrin problem by demonstrating uroporphyrinuria in her apparently normal sister, which suggests the familial element of this disorder. This finding of porphyrinuria in the case creates a stimulus to all to search in other cases, especially in bullous lesions if they lie on the unexposed parts of the body. This excellent presentation gives all of us an urge to study more dermatologic syndromes from this point of view.

DR. MAXIMILIAN E. OBERMAYER, Los Angeles: I am particularly pleased with this report, which confirms the observations of Turner and myself published in 1938. The case reported by the authors is strikingly similar to that which formed the core of our report and to the 14 others which we were able to collect from the literature. The term porphyria cutanea tarda appears well chosen for this syndrome. Through the cooperation of Dr. Stephen Rothman and his staff at the University of Chicago School of Medicine I was enabled to collect some data about the present status of the patient whom we studied ten years ago. Her urine is still red and shows a concentration of 31 micrograms of coproporphyrin per hundred cubic centimeters, or about double the normal value. Detailed examinations for uroporphyrin were not carried out, but this substance was not identified on gross spectroscopy. The patient stated that her sensitivity to light had not changed but that she had learned to protect herself against the sun and has had only mild recurrences of the cutaneous symptoms in the last few years. Abnormal reactions to light still could not be elicited. The most interesting feature of the follow-up is the account of a severe psychotic episode which began in 1945; the patient is still under psychiatric treatment. I am inclined to interpret this psychosis and the jacksonian convulsions exhibited by the patient of Brunsting and Mason as late manifestations of porphyria. Neither the authors nor we were able to arrive at definite conclusions about the pathogenesis of the syndrome. In view of Turner's demonstration of the occurrence of physiologic porphyria in the fox squirrel, it seemed unlikely that actual hepatic disease is involved in the genesis of human porphyria. Brunsting and Mason have considered the possible etiologic role of hepatic dysfunction, and their conjectures are supported by the results of the British and South African investigations which Adler presented before the Royal Society of Medicine (Adler,

A.: Solar Dermatitis in Adults, Proc. Roy. Soc. Med. **36**:284 [April] 1943). A wealth of experimental data appear to point toward a causal connection between hepatic damage and hypersensitivity to light. Cattle in South Africa acquire a disease characterized by hypersensitivity to light when they are allowed to feed on plants containing toxic substances which act on the liver. Similar sensitization was brought about experimentally by damaging the liver through ligation of the common duct. Further studies led to the discovery that absence of a substance which accompanies vitamin A is the critical factor in causation of the hypersensitivity. Liver cells always contain vitamin A, which is necessary for their normal function. The toxic influence of thyroxin, which leads to the disappearance of glycogen from the liver, can be successfully counteracted by the administration of vitamin A.

DR. ERVIN EPSTEIN, Oakland, Calif.: It should be stressed that congenital porphyrinuria is a potentially serious condition. I recall a woman aged 18 whom I saw in the hospital some years ago. She was in coma when brought in. There was no history available and the only findings were mild erythema of the chest and a Burgundy wine colored urine. Examination of this urine proved that she had porphyrinuria. She died within a couple of days. We were later able to reconstruct some of the history from her friends and members of her family. She had been in the psychiatric wards of the hospital a number of times. Each admission was for an acute episode of mental confusion. Each time dark colored urine was noted, but at no time were examinations made for porphyrins. The erythema of the chest was later found to be due to an ultraviolet light treatment given for a cold. That, of course, seemed to be the precipitating factor in this case.

DR. THOMAS S. SAUNDERS, Portland, Ore.: I should like to raise two questions. One concerns the production of hyperpigmentation and hypertrichosis: is that an indication of adrenal dysfunction? I think we must agree that the production of hyperpigmentation in a light-sensitive person is more or less a physiologically protective proposition. The other question: I wonder if it makes any difference what the light-sensitive patient eats. The textbooks all say he should eat a diet low in animal protein, yet Bommer makes the statement that a light-sensitive patient should avoid eating green leafy vegetables, reasoning by analogy that the chlorophyll in the vegetation would make him even more sensitive to light.

DR. LOUIS A. BRUNSTING, Rochester, Minn.: I will answer the last question first. I am not familiar with conditions of photosensitivity in human beings due to dietary factors, but in animals, especially in the sheep industry, it is well known that the ingestion of certain weeds produces not only a high degree of photosensitivity but severe hepatic damage as well. In our patient hypertrichosis and melanosis had developed to a degree where the patient's skin was in decided contrast to that of her sister, whereas normally the two had been of the same complexion. There was no evidence of dysfunction of the adrenal cortex; the urine contained normal levels of 17-ketosteroids.

Electrocardiographic Changes Following Tachycardia.—Striking electrocardiographic alterations may persist for a long period of time after an attack of paroxysmal tachycardia in individuals who do not have evidence of structural heart disease. These changes are most prominent following paroxysms of ventricular tachycardia and consist in depression of the ST segments, lowering or inversion of the T waves and prolongation of the QT interval. This phenomenon has not been generally recognized. . . . As postulated by Cossio, Vedoya and Berconsky, it is thought that the automatic focus which is responsible for the paroxysmal ventricular tachycardia retains some type of activity after the cessation of the tachycardia, influencing the electrical phenomenon to produce the abnormalities of the T waves, the ST segments and the QT intervals. This syndrome is not indicative of serious heart disease, for which it may be mistaken.—Smith, Leslie B.: Paroxysmal Ventricular Tachycardia Followed by Electrocardiographic Syndrome, *American Heart Journal*, August 1946.

Clinical Notes, Suggestions and New Instruments

MENINGITIS DUE TO ESCHERICHIA COLI

Streptomycin Therapy

WILLIAM P. SHIELDS, M.D.
Providence, R. I.

Meningitis due to Escherichia coli is a rare disease at the Charles V. Chapin Hospital. During the ten year period Jan. 1, 1936 to Jan. 1, 1946, 776 patients with meningitis of all types have been admitted to this hospital. During this period there were not any cases of meningitis due to Esch. coli.

Alexander [1] recently reported the first instance of treatment of this disease with streptomycin. The patient was a 19 year old soldier. The source of infection was probably a bacteremia secondary to a mixed type of osteomyelitis of the tibia. This patient recovered with no apparent sequelae. There have been reports of the use of the sulfonamides in this disease. Thompson and Quinn,[2] Rauch and Krinsky,[3] Hollis and Baty,[4] Barrett [5] and his associates, McLendon and Mitchell [6] and Strong and Edwards [7] have reported cases with recovery—a few of full recovery, but others with sequelae such as hydrocephalus and encephalopathy with atrophy of the optic nerve. The rarity of the following case, the mode of treatment and the satisfactory response make it appear worthy of publication.

Examination of the Spinal Fluid

Date	Cell Count*	Culture	Sugar, Mg./100 Cc.	Protein, Mg./100 Cc.	Chloride, Mg./100 Cc.	Remarks
June 18	68	E. Coli	Too low	200	670	Opalescent
June 20	364	E. Coli	5	...	670	Opalescent
June 21	...	E. Coli	6	150	680	Opalescent
June 22	50	No growth	8	140	670	Opalescent
June 23	400	No growth	10	160	680	Opalescent
June 24	...	.....	..	...	...	Bloody tap
June 25	250	No growth	14	130	680	Bloody fluid
June 26	104	No growth	18	120	670	Xanthochromic
June 28	300	No growth	..	...	...	Xanthochromic
June 29	190	No growth	20	150	...	Xanthochromic, clear
July 2	...	No growth	30	90	700	Xanthochromic, clear
July 5	120	No growth	34	80	700	Clear
July 10	154	No growth	36	40	710	Clear
July 24	40	No growth	32	45	710	Clear

* A differential cell count was not made. However, most of the cells were lymphocytes.

REPORT OF CASE

History.—M. D., a white male infant aged 5 weeks, was born in a hospital in Providence, R. I. on May 8, 1946. The delivery was normal. The child weighed 7 pounds and 7 ounces (3,374 Gm.) at birth. Shortly thereafter, the child was given an evaporated milk formula, to which a preparation of dextrin and maltose was added. On the tenth hospital day he was discharged, weighing 7 pounds and 9 ounces (3,430 Gm.).

From the outpatient department of the Charles V. Chapin Hospital. The streptomycin was supplied by Merck & Co., Inc., Rahway, N. J., through the National Research Council, Chester S. Keefer, Chairman.

1. Alexander, A. J.: Meningitis Due to Escherichia Coli Treated with Streptomycin, J. A. M. A. **131**: 663 (June 22) 1946.
2. Thompson, H. E., and Quinn, R. P.: Meningitis Caused by Bacillus Coli: Case, J. Iowa M. Soc. **29**: 611 (Dec.) 1939.
3. Rauch, S., and Krinsky, N.: Meningitis Caused by Bacterium Coli Aerogenes, Am. J. Dis. Child. **60**: 1386 (Dec.) 1940.
4. Hollis, C. H., and Baty, J. M.: Meningitis in Children, New England J. Med. **230**:278 (March 9) 1944.
5. Barrett, G. S.; Rammelkamp, C. H., and Worcester, J.: Meningitis Due to Escherichia Coli, Am. J. Dis. Child. **63**: 41 (Jan.) 1942.
6. McLendon, P. A., and Mitchell, R. H.: Meningitis in Newborn Due to Colon Bacillus: Report of Case with Recovery, South. M. J. **34**: 1001 (Sept.) 1941.
7. Strong, P. S., and Edwards, J. E.: Escherichia Coli Meningitis Treated with Sulfadiazine, J. A. M. A. **129**: 210 (Sept. 15) 1945.

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The infant was taken to his parents' home in West Warwick, R. I., and for the next three weeks seemed to do well, except that he had six or seven soft stools a day. Beginning with the fourth week, the formula was changed to a mixture of pasteurized milk and water, to which a preparation of dextrin and maltose was added. The child then began to have three or four formed stools a day. On June 14, at the age of 5 weeks, the mother noticed that the child was exceedingly warm and appeared irritable. The family physician who was called said that the child had a fever. Two days later the mother was alarmed by the rolling of the child's eyes and a profuse drooling of saliva from his mouth. During this time his appetite was good, and there was no vomiting. On June 18, the infant had tremors of all extremities, vomited once and appeared feverish and irritable. He was then brought to this hospital.

Physical Examination.—The baby appeared critically ill. The temperature was 99 F., the pulse rate 140 and the respiratory rate 40 per minute. The cry was lusty, and the bodily movements were vigorous. The skin was pale, the color was poor, and there was neither rash nor icterus. During the examination the child had a generalized convulsion of short duration. The skull was well formed, and the anterior fontanel was bulging. The eyes showed lateral nystagmoid movements, but strabismus was absent. The scleras were clear, the pupils were dilated and reacted well to light. The nose and ears were normal. The throat was not inflamed, and the oral mucosa did not display abnormalities. A systolic murmur, grade 2, was heard over the precordium, and a sinus arrhythmia was present. The lungs were clear, the abdomen was soft, and the liver was palpable. Neurologically, the child had generalized rigidity of the muscles of the lower extremities, back and neck and had a positive Kernig sign. Muscular paralyses were not evident.

A cisternal puncture was performed on admission, and 10 cc. of opalescent fluid under increased pressure was removed. In the accompanying table are summarized the data on the spinal fluid during the child's stay in the hospital.

Laboratory Data.—Examination of the blood revealed: hemoglobin 9.9 Gm. (68 per cent) by the Sahli method; red blood cells 4.2 million; white blood cells 12,150, with 60 per cent polymorphonuclears, 15 per cent small lymphocytes, 15 per cent large lymphocytes, 9 per cent monocytes and 1 per cent eosinophils. The red blood cells displayed a moderate to appreciable achromia. The urine was clear and gave normal results to the routine laboratory analyses. Culture of the blood on admission showed a pure growth of Esch. coli communior which was identical with the organism recovered from the spinal fluid. Cultures of material from the nose and throat were negative for hemolytic streptococci and diphtheria organisms. The Wassermann and Hinton tests were negative, and the blood group was type O.

Clinical Course.—The impression on admission was acute meningitis, type undetermined. Ten thousand units of penicillin were given into the basal cistern immediately, and a solution of 20 cc. of 5 per cent sodium sulfadiazine was given intravenously, followed by 150 cc. of isotonic solution of sodium chloride by slow intravenous drip. Sulfadiazine was then given orally in doses of 3.7 grains (0.25 Gm.) every six hours. During the evening of admission the infant had several severe twitchings but slept well and took the formula well.

The following day, June 19, the child's color was improved. Twitchings were absent, and the formula was taken well. A blood transfusion (75 cc. of citrated blood) was given on the following day, June 19. On June 21, 100 cc. of citrated blood was given, and this procedure was repeated on June 24. In the meantime, a gram-negative bacillus was found on culture of the spinal fluid, later identified as Esch. coli communior. Streptomycin treatment was instituted on June 20; 30,000 units were given into the basal cistern and 30,000 units were injected intramuscularly every three hours. The administration of sulfadiazine was discontinued as soon as the streptomycin therapy was instituted. This course of treatment was continued throughout the twelfth hospital day, for a total of ten days. The total parenteral dose was 2,630,000 units (intramuscularly) and, in addition, 300,000 units intrathecally. Untoward reactions were not apparent.

The patient took the formula well during the entire stay in the hospital. The weight on admission was 9 pounds and 2 ounces (4,139 Gm.), and on discharge it was 9 pounds and 9 ounces (4,337 Gm.). The circumference of the head was 15¼ inches (38.74 Cm.) during the stay in the hospital, and the anterior fontanel did not display bulging. The child was discharged to his parents on July 7, 1946, with 120 cells in the spinal fluid, which was negative, however, on culture. He was brought back for a check-up on July 10, at which time he was apparently well, and neurologic signs were absent. The cell count on the spinal fluid was 154, mostly lymphocytes, and organisms were not present on culture. The chemistry of the spinal fluid was normal.

Subsequent examination of the child has not shown evidence of sequelae or recurrence of the meningitis.

SUMMARY

A case of meningitis due to Escherichia coli communior and bacteremia in a 5 week old infant is reported. This child fully recovered without sequelae. Although this patient had received penicillin intrathecally and sulfadiazine both intravenously and orally at the onset of treatment, it is questionable whether there would have been such a rapid and satisfactory response without the streptomycin.

Streptomycin appears to be an important contribution to the treatment of meningitis due to Esch. coli.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PENICILLIN OINTMENT.—A mixture of sodium or calcium penicillin in an ointment base composed of white petrolatum, liquid petrolatum, lanolin or any mixture of these with or without the addition of white or yellow wax and vegetable oil.

Actions and Uses.—Penicillin ointment is useful in the treatment of superficial infections of the eye involving the cornea, conjunctiva, meibomian glands and lacrimal sac caused by organisms susceptible to penicillin. It may be employed for topical application to burns of the skin to control infection. It may also be used for superficial infections of the skin such as impetigo, provided the infecting organism can be demonstrated to be penicillin sensitive.

Dosage.—Apply locally one or more times a day as the condition indicates. If indicated, supplement treatment with parenteral or oral administration of penicillin.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Penicillin Calcium Ointment: 30 Gm. tubes. Each gram contains 1,000 units of penicillin calcium in white petrolatum, U. S. P.

Penicillin Calcium Ophthalmic Ointment: 4 Gm. tubes. Each gram contains 1,000 units of penicillin calcium in a base consisting of white petrolatum, U. S. P., 80 per cent and liquid petrolatum, U. S. P., 20 per cent.

E. R. SQUIBB & SONS, NEW YORK

Penicillin Calcium Ointment: 14.5 Gm. tubes. Each gram contains 1,000 units of penicillin calcium in a base consisting of beeswax, peanut oil, petrolatum and anhydrous lanolin.

WINTHROP CHEMICAL CO., INC., NEW YORK

Penicillin Calcium Eye Ointment: 3.54 Gm. tubes. Each gram contains 1,000 units of penicillin calcium in a base consisting of white petrolatum, U. S. P., 60 per cent and liquid petrolatum, U. S. P., 20 per cent and lanolin anhydrous, U. S. P., 20 per cent.

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SATURDAY, NOVEMBER 2, 1946

PLANS FOR A RURAL HEALTH PROGRAM

The Committee on Rural Medical Service of the American Medical Association at its meeting in San Francisco on June 30 reported that thirty-one state medical societies had made progress toward establishing rural health committees and formulating medical society sponsored plans to improve rural health and to provide for voluntary prepayment against costs of illness. The Council on Medical Service and the Rural Medical Service Committee held additional meetings in September, emphasizing the interest of the medical profession in leading movements to improve the health services of rural communities. Significantly, committees formed by various rural organizations in the states to develop plans for health services have been interested in the point of view of the medical profession; leaders of national farm organizations are seeking the guidance of medical agencies. The major farm organizations are cooperating in the development of rural health programs. Through their committees they are initiating health educational programs and enrolment in prepayment plans on a local basis.

Joint meetings of rural health service committees of state medical societies and committees on rural health service of farm organizations have been reported by several states and are being planned by others. The discussions center around farm health needs, health facility surveys, medical personnel, an adequate public health and sanitation program, health education in the schools, dental health needs, health legislation, hospitals as memorials to war heroes, and what has been done for rural medical care in other states. Minimum standards for each type of health service need are being considered by state and national committees to serve as a guide, not to tell the local people what to do but to point out a way in which it may be done when once a decision has been reached.

The report from the physicians' rural health service committee of Minnesota states that, "if the presence of a physician in the community is to have the full effect in rural medicine, we must also have suitable homes for our rural families, balanced diet for the promotion of healthy growth and the maintenance of vigorous bodies. Knowledge of good living habits, instructions for expectant mothers, infant care, the home management of common ailments and first aid are most important and full confidence in and proper utilization of facilities for hospital and medical care that are at hand."

From Indiana comes the suggestion that hospitals might be extended into rural areas by inviting physicians in villages around hospitals to the courtesy staff. Thus they could attend staff meetings, bring their patients for consultation or diagnosis and care for their patients within the limits of their experience.

The problem of the farm family with low income in obtaining and paying for medical care might be solved by securing enrolment of farmers in a prepayment plan when income is relatively high. In some areas state and local welfare agencies may prepay the premiums of the indigent, and the state and local taxing units may be approached for part of the premium for low-income families.

STREPTOMYCIN-PROMIN THERAPY

In 1945 Smith and McClosky[1] of the National Institute of Health, Bethesda, Md., reported that streptomycin and promin when administered together, the one intramuscularly and the other orally, to guinea pigs infected with a human strain of tubercle bacilli exerted a chemotherapeutic action greater than what might have been expected from a simple summation of effects. This assumed synergic therapeutic action was afterward duplicated[2] by therapeutic tests on white rats, which are normally highly resistant hosts to tubercle bacilli.

Intraperitoneal or intravenous inoculation of human or bovine strains of tubercle bacilli into white rats usually results within a month in progressive proliferation of monocytes, forming aggregates of epitheloid cells, with a few multinucleated giant cells. These cellular aggregates are found predominantly in the lungs, liver and spleen. Tubercle bacilli multiply in great numbers in these cells without producing necrosis, caseation or other serious tissue damage. The whole process has litle effect on the general health until much of the normal lung is replaced by the epitheloid masses. This ultimately so impairs the normal respiratory function that the animal dies of asphyxia.

In the confirmatory tests, four groups of adult rats were each inoculated intraperitoneally with 5 mg. of virulent human tubercle bacilli. Each group consisted of 12 rats. Immediately after the inoculation, treatment was begun and continued as follows: group A, 50,000

1. Smith, M. I., and McClosky, W. T.: Pub. Health Rep. **60**: 1129 (Sept. 28) 1945.
2. Smith, M. I.; McClosky, W. T., and Emmart, E. W.: Proc. Soc. Exper. Biol. & Med. **62**: 157 (June) 1946.

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units of streptomycin per kilogram injected intramuscularly once daily and promin fed in the daily diet at a level of 0.7 per cent; group B, promin fed in the diet at the same level but no streptomycin; group C, streptomycin given at the same level but no promin; group D, untreated controls. At twenty-eight to fifty-three days following inoculation the animals were killed by decapitation in sets of 4, 1 from each group. The left lobes of the lungs were finely emulsified. Smears, glycerin-egg slants and guinea pig inoculations were made with aliquot parts of each emulsion.

In group D (nontreated controls) 8 of the 12 animals showed positive smears, 11 developed tubercle bacilli on subcultures and all 12 developed tuberculosis on guinea pig inoculation (average severity 4.6 on the Smith scale [3]). In group C (promin treated) 9 of the 12 animals showed positive smears, 7 yielded positive subcultures and 9 gave positive inoculations in guinea pigs (average severity 3.1). In group C (streptomycin treated) only 2 rats gave positive lung smears, 8 positive subcultures and only 7 positive inoculations in guinea pigs (average severity 3.8). In contrast, group A (streptomycin plus promin) showed no positive lung smears, only 3 of the 12 members gave positive subcultures and there were only 5 positive guinea pig inoculations (average severity 0.7).

Summarizing his results, Smith concludes that under his selected experimental conditions treatment with promin alone was without beneficial effects. Treatment with streptomycin alone resulted in negligible therapeutic effects. Combined treatment with streptomycin and promin resulted in a sterilization of 41.6 per cent of the inoculated rats and an 85 per cent reduction in the number of viable (or virulent) tubercle bacilli in the remaining (58.4 per cent) members of the group.

A theory has not thus far been suggested to account for this presumable synergic therapeutic action. Whether or not the combined therapy would be equally effective in later intracellular stages of experimental tuberculosis in rats has not yet been determined.

3. Smith, M. I.; Emmart, E. W., and Stohlman, E. F.: Am. Rev. Tuberc. **48**: 32 (July) 1943.

HEALTH AND PHYSICAL FITNESS

With the establishment of the Health and Physical Fitness Project in its Bureau of Health Education, the Association takes another step forward in its effort to contribute to the promotion of health. Health and physical fitness are important even though the popular interest in them has considerably diminished with the end of the war. The Board of Trustees early in 1946 authorized the establishment of a health and physical fitness project in the Bureau of Health Education to work under the supervision of the American Medical Association Committee on Health and Physical Fitness.

The project will include the health and fitness problems of the preschool child, the school child, the college students, the adult, both rural and urban, and the industrial worker. Though the committee contemplates cooperation with all other health agencies working toward health improvement in home, school, industry and community, it has expressed the belief that it is first in the schools and second in industry that the most immediate and most practical approach to the problem lies. The efforts of the consultants in the project will therefore be directed primarily to these fields.

The committee will not attempt to set up any master plans or "ideal" health programs and then attempt to procure their widespread adoption in the schools and industries of all types and sizes. Rather it is the plan to accumulate source files on the varied health programs now in use with the purpose of making both reports on these programs and the advice and counsel of the two consultants available on invitation to boards of health, boards of education, employers, employee groups, medical societies and women's organizations.

This project is in a sense a continuation of the work carried on by the Association in conjunction with government agencies and other interested groups during the late war. Including the project in the total health education program of the Association and staffing it with a physician who has had wide experience in health education and an educator experienced in the health and physical education fields will give it a permanence and a practicability lacking in the previous organization.

TOMOGRAPHY IN THE DIAGNOSIS OF LUNG CARCINOMA

Grossmann [1] in 1935 described an apparatus with which he was able to demonstrate clearly pulmonary abnormalities not well shown by other radiographic means. The tomograph has steadily gained new advocates, particularly in England. Roentgenograms of a selected plane or stratum of the patient's body are accomplished by moving the tube and the film during the exposure in such a manner that the images of objects in the selected plane occupy the same positions on the film, while the images of objects in planes above or below that plane are blurred by the movement.

Recently Hartley,[2] in a review before the Section on Radiology of the Royal Society of Medicine, made a strong plea for this method of examination of chest lesions, especially when the diagnosis lies between primary carcinoma of the lung, mediastinal tumor or mediastinal metastasis. In these situations early diagnosis becomes more imperative as the possibilities of cure or alleviation by radiotherapy or surgery increase. These two therapeutic methods demand accuracy in diagnosis, the former in order to plan the radiation

1. Grossmann, G.: Tomography, Fortschr. a. d. Geb. d. Röntgenstrahlen, **51**: 61 (Jan.), 191 (Feb.) 1935.
2. Hartley, J. Blair: Tomography in the Diagnosis of Lung Carcinoma, Proc. Roy. Soc. Med. **39**, July 1946.

dosage, the latter in order to decide the question of operability.

The demand for more accurate methods at the Holt Radium Institute arose from the fact that primary carcinoma of the lung referred for treatment multiplied 3.3 times from 1940 to 1944, and the number of cases of malignant disease of the mediastinum multiplied 2.5 times. The demand arose also because the established diagnostic method, bronchography using lipiodol, was contraindicated; the therapists objected that treatment was already difficult without introducing the factor of an unknown quantity of iodine within the lung; second, it was recognized that bronchoscopy had limited value in that some carcinomas lie in situations not visible or reachable by the bronschoscope; third, it was necessary to localize the treatable lesions in depth and, if possible, in extent.

Although the tomographic unit used in these investigations was the same simple and primitive unit used by Hartley's predecessor, the late E. W. Twining,[3] it was of great value both to the diagnostician and to the radiotherapist. The device was valuable in demonstrating whether one was dealing with carcinoma of the obstructing or ulcerating type or whether the lesion was extensive and of the peribronchial infiltrating variety, in confirming the obstruction of a bronchus and in demonstrating its probable site of origin and in demonstrating the size or depth of a carcinoma already diagnosed and the true nature of lesions incorrectly diagnosed. It was exceedingly useful as an aid in determining whether changes found in the chest picture during the follow-up period were due to recurrence of the treated lesion or to mechanical deformities resulting from fibrosis, which in turn might result from treatment.

Tomography has certain limitations. It does not necessarily indicate the exact nature of the lesion. It is frequently not reliable in distinguishing between how much of the lesion shown in a routine roentgenogram is due to malignancy and how much to infection. It does not easily demonstrate early lesions in the lungs; in fact, they may be missed; here improvements in technic are required. Tomography cannot replace routine radiography; it can be really satisfactorily carried out only after study of and with measurements obtained from both the posteroanterior and the lateral views. Nevertheless, as Hartley concludes, its value is not adequately realized, and it should replace lipiodol bronchography when the case is likely to be one of carcinoma of the bronchus or when radiation therapy is indicated.

3. Twining, E. W.: Tomography by Means of a Simple Attachment to the Potter-Bucky Couch, Brit. J. Radiol. **10**: 112 (April) 1937.

Current Comment

POSTGRADUATE EDUCATION IN PSYCHOSOMATIC MEDICINE

An experimental graduate course was recently given to determine whether general practitioners can be taught to practice in their offices the kind of medicine psychoneurotic patients need. This course was sponsored jointly by the Commonwealth Fund and the Division of Postgraduate Education of the University of Minnesota and was held at the Center for Continuation Study of the University of Minnesota.[1] Two weeks was considered adequate for instruction without depriving the busy physician of too much of his time. The teaching staff was drawn from the ranks of younger psychiatrists, most of them with military experience. The student group consisted of twenty-five physicians representing the practice of medicine under varying conditions in communities of assorted size chiefly in Minnesota and neighboring states. Instruction was both didactic and clinical. After the course had been completed the following specific goals were defined:

1. To give the doctor a feeling of the dynamic qualities and the value of the doctor-patient relationship.

2. To introduce him to broad patterns of human motivation and to the common causes and backgrounds of emotional disturbance.

3. To lead him to think in terms of the relation between emotional disturbance and illness.

4. To teach him easily understandable methods of therapy so that he can treat a share of such illness.

5. To give him some knowledge of more malignant conditions so that he may refer them to specialists.

Careful analysis by both students and instructors at the end of the course furnished evidence that this type of graduate education had been valuable in a practical sense.

DECLINE IN INTELLIGENCE

Several studies have indicated that there is an average of a two or three point decline in intelligence (I. Q.) in each generation. According to Thomson,[1] it is impossible to say how much of this may be due to heredity and how much to environment. The theory of the decline is, of course, based on present methods of intelligence testing, but these, like other scientific technics, are subject to change. The decline, if true, may be due to the differential birth rate, families of higher intelligence ratings on the average having fewer children than those with low ratings. The subject is important enough to warrant intensive study. Thomson urges that actual measuren ent of two successive generations be made and that all who are in a position to facilitate such experiments exert themselves in this direction.

1. Smith, Geddes: Psychotherapy in General Medicine: Report of an Experimental Postgraduate Course, Commonwealth Fund, New York, 1946.

1. Thomson, Godfrey: The Decline in Intelligence, Eugenics Review, April 1946.

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ORGANIZATION SECTION

Official Notes

MEETING OF EXECUTIVE COMMITTEE OF COUNCIL ON MEDICAL SERVICE

September 18, 1946

The meeting was called to order by the chairman, Dr. E. J. McCormick. Those present were Dr. James R. McVay, Dr. A. W. Adson, Dr. Louis H. Bauer, Dr. Joseph S. Lawrence, Thomas A. Hendricks, secretary, George W. Cooley, assistant secretary, Jay C. Ketchum, Howard O. Brower, L. S. Kleinschmidt and Frank G. Dickinson, Ph.D., director, Bureau of Medical Economic Research. Others present at intervals during the meeting were J. W. Holloway Jr., director, Bureau of Legal Medicine and Legislation; T. V. McDavitt, Bureau of Legal Medicine and Legislation; Dr. C. M. Peterson, secretary, Council on Industrial Health; Dr. John H. Fitzgibbon, and Dr. C. W. Roberts.

Relationship of Council to Associated Medical Care Plans.—Dr. McCormick and Dr. Adson gave a report of a joint meeting of Council representatives and officers of Associated Medical Care Plans. The Council discussed the financing of A. M. C. P., the location of its headquarters, the function it should assume and the degree of participation by the Council in policy control. In view of the meeting of plan executives set for October 4-6 it was voted that any further action on the relationship between the Council and A. M. C. P. be deferred until a later date.

The Seal of Acceptance.—Applications for the Seal of Acceptance were read and discussed. The following plans were added to the original nine plans:

Physicians Association of Clackamas County, Oregon.
Hospital Service Corporation, Alabama.
Hospital Service of California.
Florida Medical Service Corporation.
Genesee Valley Medical Care, New York.
Hospital Saving Association of North Carolina.
Oklahoma Physicians Service.
Coos Bay Hospital Association, Oregon.
Pacific Hospital Association, Oregon.
Klamath Medical Service Bureau, Oregon.
Group Medical and Surgical Service, Texas.
The Dallas County Medical Plan, Texas.
Surgical Care, Inc., Virginia.
Medical Surgical Service, Inc., West Virginia.
Marion County Medical Service, Inc., West Virginia.
Medical-Surgical Care, Inc., West Virginia.
West Virginia Medical Service.

Joint Meeting with Insurance Company Representatives.—Mr. Hendricks reported on a meeting with representatives of insurance associations.

Two committees suggested at the meetings were approved by the Council and the following appointed to serve as Council representatives: 1. Committee on Cooperation: Dr. A. W. Adson, chairman; Dr. James R. Miller; Lester Perry; ex officio members: Jay C. Ketchum, Frank Dickinson, Ph.D., and Howard Brower. 2. Committee on Rural Enrolment: Dr. James R. McVay, chairman; Dr. F. S. Crockett, and L. S. Kleinschmidt. Ex officio member, Frank G. Dickinson, Ph.D.

Authorization was given to make contact with the Blue Cross Commission and/or the American Hospital Association, requesting that representatives be appointed to serve on both committees.

Taft Bill.—The Council discussed the Taft bill, considering ways and means of evaluating the bill. A letter to the state medical societies asking for suggestions was authorized, with a report on the answers to be compiled for the next meeting. Letters from California and Washington were read and discussed.

United Mine Workers Health Fund.—Mr. Hendricks gave a report on the United Mine Workers Health Fund and the meeting in Williamson, W. Va., with the Mine Physicians' Group. A vote of commendation was extended to Dr. Walter B. Martin for his excellent work on the bituminous coal situation. It was suggested that a Council representative join one of the navy field teams in inspecting the coal mine areas. Dr. George Easley of Williamson, W. Va., spoke informally to the Council on the medical care situation in the coal mines. He was commended and was asked to keep the Council informed on future developments.

Rural Health.—The Council read and discussed the recent News Letter on Rural Health. It was suggested that similar letters might well be set up for other points of the Ten Point Program.

Mr. Hendricks introduced a new member of the Council staff, Mr. L. S. Kleinschmidt, who is to concentrate on rural medical care programs. Attention was called to the suggested program for rural participation in prepayment medical care plans, and the Council members were asked to become familiar with it for discussion at the next meeting.

Co-Op Movement.—Mr. Hendrick gave a report on the "Co-Op" meeting in Two Harbors, Minn. There was discussion as to the attitude of organized medicine on this movement. No action was considered advisable until further information could be developed.

Hill-Burton Bill.—The Council discussed a possible program with reference to the Hill-Burton bill. Dr. John Fitzgibbon and Dr. C. W. Roberts, members of the Board of Trustees, brought the thoughts of the Trustees on this matter to the Council. In general it was believed that the Council should provide the state medical societies with basic principles and policies to be followed in carrying out the provisions of the bill. Specifically, the Council was requested to prepare such recommendations for the House of Delegates meeting in December. The Council authorized a special News Letter to be sent out on the subject.

Miscellaneous Activities.—Debate Handbook: Handbooks on Compulsory Sickness Insurance: Mr. Cooley presented the final proofs of a new brochure entitled "Voluntary Health Insurance vs. Compulsory Sickness Insurance." This brochure is to be sent out in cooperation with the National University Extension Association as a part of the material for use by students in this year's debates. Over eight thousand requests have already been received, with more coming in daily. Several suggestions were made, and the proof was approved.

A Motion Picture: The Council authorized investigation into the possibility of either making or obtaining a movie showing the progress of medicine or of the prepayment plan movement. This would be made available to meetings of lay groups.

Speakers Bureau: The Council is organizing a program designed to develop speakers on various subjects of popular interest. Contact will be made with the state and county medical societies to find out the extent of such programs and get information for possibilities of some sort of correlation.

Washington Office: Dr. Lawrence spoke briefly on the Legislative Reorganization Act and on the new bill requiring the registration of lobbyists. He pointed out that although the Social Security Board was abolished the personnel, including Mr. Altmeyer, was transferred to the Federal Security Agency.

National Health Congress: There was considerable discussion as to the next moves to be made in correlating the efforts of the state and local health councils. It was decided to call a general meeting at the time of the House of Delegates meeting or the Secretaries' Conference.

American Cancer Society: Dr. McCormick read a letter from the American Cancer Society concerning the problem of diagnostic clinics. The matter was referred to Drs. Bauer, Miller, McGoldrick and McCormick with authorization to attend a meeting of the American Cancer Society in New York as Council representatives.

Rating Committee: The Council reviewed the work done to date on the schedule of relative values. In view of the joint committee work of the Council and the insurance associations, it was felt that the schedules should be completed as soon as possible.

RESOLUTIONS TO BE PRESENTED TO HOUSE OF DELEGATES

NOTE.—These resolutions are published in accordance with a request of the House of Delegates to the effect that resolutions to be presented before the House of Delegates be published thirty days before the House of Delegates is to convene in session.

These two resolutions were adopted by the Utah State Medical Association:

Resolution on Rich Report

WHEREAS, The American Medical Association has had a complete and presumably competent survey of its public relations made by the Rich Associates; and

WHEREAS, The report of the Rich Associates apparently contains rather sweeping recommendations; and

WHEREAS, The contents of this report are unknown to the House of Delegates of the American Medical Association in spite of the fact that said House is the policy making body of the American Medical Association; and

WHEREAS, It is believed to be unwise for the House of Delegates to approve changes in the American Medical Association without knowledge of what it is that it approves; be it

Resolved, That the delegate to the American Medical Association is hereby instructed to take such action in the House of Delegates of the American Medical Association as will result in the members of that House becoming informed as to the contents of the so-called Rich report of the Rich Associates.

Resolution on Referring All Business to Reference Committees

WHEREAS, At the last meeting of the House of Delegates of the American Medical Association numerous matters were referred to the Board of Trustees as a reference committee; and

WHEREAS, At least one question was referred to the Judicial Council as a reference committee; and

WHEREAS, The By-Laws of the American Medical Association clearly set forth the constitutional manner of appointment and duties of the reference committees of the House; and

WHEREAS, It appears improper that a standing committee of the Association should act as a reference committee to review its own actions; be it

Resolved, That the delegate to the American Medical Association is hereby directed to take such action in the said House as will result in all business of the House of Delegates being referred to the reference committees of the House in accordance with the By-Laws of the American Medical Association.

Resolution on Fees from Insurance Companies

The following resolution was passed by the House of Delegates of the Tennessee State Medical Association:

Resolved, that it is the sense of the Tennessee State Medical Association in meeting assembled that we deplore the injustice of the insurance companies of America toward the members of the medical profession in their failure to raise the five dollar fee paid for medical examinations for more than seventy-five years. This rank unfairness is accentuated by the fact that the entire financial structure of life insurance is erected and its solvency based on the integrity and professional ability of the examining physician. Moreover, this flagrant violation of fair practice on the part of all life insurance companies is made more glaring by the fact that no account is taken of the increased cost of medical education, medical equipment and medical expenses, including transition from the horse and buggy to the automobile age.

Washington Letter

(From a Special Correspondent)

Oct. 28, 1946.

Global Control of Venereal Disease Advocated

Two U. S. Public Health Service officials, Dr. J. R. Heller, chief of the venereal disease division, and Dr. R. A. Vonderlehr, former chief who is now public health director in Puerto Rico, have written a book, "The Control of Venereal Disease," which proposes global control through closer international cooperation, a universal system of diagnostic service, worldwide organization of free clinics and global headquarters for the exchange of information.

Hospital Deficiencies Cited by Dr. Claude W. Munger

Dr. Claude W. Munger, co-author of the Metropolitan Health and Hospital Survey, which accused Washington, D. C., hospitals and medical care of many shortcomings, reiterated that the city's hospitalization requirements were "crying aloud for solution." He joined with Admiral Ross T. McIntire, Surgeon General of the Navy, and Major Gen. U. S. Grant 3d, chairman, in an appeal for support of the George Washington University drive for $925,000 for its new hospital.

Nurses Who Died in Europe During World War II to Be Honored

The sixteen army nurses who died through enemy action in the war were honored at ceremonies Sunday in the amphitheater of Arlington National Cemetery. Major Gen. Norman T. Kirk, Surgeon General of the Army, introduced Secretary of War Patterson, who paid tribute to the war service of all enlisted nurses. In addition to the sixteen who died through enemy action, 180 army nurses died of natural causes while on duty.

George Washington University to Conduct Research in Anesthesia

Dean Walter A. Bloedorn of George Washington University School of Medicine reported here, coincident with the one hundredth anniversary of anesthesia, that a $20,000 grant had made possible the first major research in anesthesia ever conducted in Washington. Radioactive isotopes will be used in research when equipment such as the Geiger counters and radioactive materials become available.

President Truman Honors Egyptian Undersecretary of Health

President Truman has presented to Dr. Ali Tewfik Sousha Pasha, Egyptian undersecretary of health, the Medal of Freedom with Silver Palm for research on typhus and other tropical diseases for the U. S. Navy during the war. The medal was presented at Cairo, Egypt, by naval attaché Capt. T. J. Carter in behalf of the President.

Coming Medical Meetings

American Medical Association House of Delegates Supplemental Session, Chicago, Dec. 9-11. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Conference of State Secretaries and Editors, Chicago, Dec. 7-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, New York, Nov. 25-27. Dr. Karl D. Figley, 316 Michigan St., Toledo 2, Ohio, Secretary.

American Academy of Dermatology and Syphilology, Cleveland, Dec. 7-12. Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, N. Y., Secretary.

American Academy of Pediatrics, Pittsburgh, Nov. 13-16. Dr. C. G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American College of Surgeons, Cleveland, Dec. 16-20. Dr. Dallas B. Phemister, 40 E. Erie St., Chicago 11, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Nov. 14. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 1, Conn., Secretary.

American Public Health Association, Cleveland, Nov. 12-14. Dr. R. M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Society of Anesthesiologists, New York, Dec. 12. Dr. Curtiss B. Hickcox, 745 Fifth Ave., Room 1503, New York, Secretary.

National Society for the Prevention of Blindness, New York, Nov. 25-27. Mrs. Eleanor Brown Merrill, 1790 Broadway, New York 19, Executive Director.

North Central Medical Conference, St. Paul, Nov. 10. Mr. R. R. Rosell, 493 Lowry Medical Arts Building, St. Paul, Secretary.

Post Graduate Medical Assembly of South Texas, Houston, Dec. 3-5. Dr. M. B. Stokes, 229 Medical Arts Bldg., Houston, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 13-15. Dr. Rafael A. Vilar, P. O. Box 3866, Santurce, Secretary.

Radiological Society of North America, Chicago, Dec. 1-6. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse 2, N. Y., Secretary.

Society of Surgeons of New Jersey, Newark, Nov. 20. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

Southern Medical Association, Miami, Fla., Nov. 4-7. Mr. C. P. Loranz, Empire Bldg., Birmingham 3, Ala., Secretary.

Southern Surgical Association, Hot Springs, Va., Dec. 10-12. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Western Surgical Association, Memphis, Tenn., Dec. 5-7. Dr. Warren H. Cole, 1853 W. Polk St., Chicago 12, Secretary.

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GOVERNMENT SERVICES

ARMY

FIRST MEETING OF THE SOCIETY OF U. S. MEDICAL CONSULTANTS

The first meeting of the Society of United States Medical Consultants of World War II was held at the Army Medical Center, Washington, D. C., on October 18. The society is composed of former medical officers, now returned to civilian life, who were consultants for the Army Medical Department in World War II. The group has formed this association under its own initiative to further the advance of the medical profession in the United States, with the particular objective of establishing close liaison with army medicine. Its plans are in the formative stage as yet, and one aim of this meeting was to set up a procedure which will aid in carrying out the objectives.

The meeting was opened by an address by the president of the society, former Brig. Gen. Elliott C. Cutler of Harvard University. Major Gen. Norman T. Kirk then paid tribute to the men whom he considers to have been highly instrumental in the record established by the Medical Department during the war, with its exceptionally low death and disease rates.

Eli Ginzberg, Ph.D., former chief of resources analysis, Office of the Surgeon General, and now professor of economics at Columbia University, analyzed certain problems coped with by the Medical Department during the war, the various methods tried and those which proved successful. He called particular attention to the achievement of the medical regulating officer, through whose offices flowed the assignment of patients at the rate of 20,000 a day who were sent to hospitals according to their type of injury or disease. Comments were freely made from the floor by the keenly interested audience, numbering about ninety, who had traveled from points over the country to attend the meeting in spite of the local hotel strike.

Major Gen. W. S. Paul, director of personnel administration, G-1, explained how the revised organization chart of the Army cleared out many barriers to enable the technical services to function at an optimum.

Luncheon at the Officers Club was followed by a closed afternoon session, attended only by members, for the discussion and ratification of the constitution and other business matters. New officers were elected as follows: president, Dr. Walter Bauer, Massachusetts General Hospital, Boston; vice president, Dr. Frank B. Berry, New York; secretary, Dr. Brian Blades, George Washington University Medical School, Washington, D. C.; treasurer, Dr. Donald M. Pillsbury, Department of Dermatology and Syphilology, University Hospital, Philadelphia, and a committee of four counselors, Dr. William S. Middleton, University of Wisconsin Medical School, Madison; Dr. Glen R. Spurling, University of Louisville, Ky.; Dr. Douglas A. Thom, Boston, and Dr. W. B. Parson, Presbyterian Hospital, New York.

A breakdown of specific services consultations constituted the Saturday morning program, with meetings held in various conference rooms in the hospital. Arrangements for the Saturday morning meetings were under the direction of former Brig. Gen. Hugh J. Morgan for the medical group, former Brig. Gen. William C. Menninger for the neuropsychiatric group and former Col. Brian Blades for the surgical group.

AIRBORNE MEDICAL COMPANY AWARDED THE CROIX DE GUERRE

The French military attaché in the United States, Lieut. Gen. Maurice Mathenet, and members of his staff flew from Washington to Fort Bragg, October 17, where fifteen units of the famous 82d Airborne Division were decorated with the Fourragère of the French Croix de Guerre. Among these units was the 307th Airborne Medical Company. The units decorated were cited for two separate actions in Normandy: one on June 5-6, 1944, the night before the D day invasion of France in the vicinity of Ste. Mère Eglise, and the other from June 6 to June 20 in and around le Merderet, la Douve, St. Sauveur-le-Vicomte and Etienneville. The citations were signed by the head of the provisional government of the republic of France. The French fourragère is predominantly green and is worn on the left shoulder. The entire 82d Airborne Division had already received the Military Order of Willems from the Netherlands and the fourragère of the Belgian Croix de Guerre.

The Distinguished Unit Citation had previously been awarded by the War Department to the 307th Airborne Medical Company of the 82d Airborne Division for extraordinary heroism and outstanding performance of duty in the initial assault on the coast of Normandy on June 6, 1944. This unit landed by glider in the face of artillery, machine gun and antiaircraft fire, and almost without rest or pause for forty-eight hours its officers and enlisted men gave the utmost of their skill and will in caring for the wounded.

SOLDIERS' PREFERENCES FOR EMERGENCY FOOD ITEMS

The Quartermaster Corps inquired of 9,691 combat soldiers of World War II to name the items they would prefer in an emergency ration to be used if they were cut off from supply and could eat only the food they carried with them.

Their choice of items in order of frequency was coffee, cigarets, biscuits, crackers, candy, chewing gum, cheese, sugar, bacon and eggs or ham and eggs, frankfurters and beans, and meat and beans. All these men had eaten combat rations, and all of them had been awarded the Combat Infantry Badge.

When asked about the K ration items, which they consumed most completely, chewing gum drew 87 per cent of the favorable answers, caramels 85 per cent, candy bars 82 per cent, coffee 76 per cent and ham and eggs 68 per cent.

When asked about the C ration items they used most completely, 85 per cent of the men said chewing gum and 83 per cent caramels, and then in order candy coated peanuts, chocolate drops, frankfurters and beans, coffee, cocoa and fudge. Twenty-five per cent ate almost none of the beef stew. The fruit powders ran low in the lists.

Concerning the type of tobacco other than cigarets which they preferred in their PX rations issued at the front, 39 per cent went for pipe tobacco, 30 per cent for cigars, 20 per cent for cigaret tobacco and 10 per cent for chewing tobacco. Thirteen per cent of the men said that they did not smoke cigarets.

DELAY SEPARATION OF NURSES PENDING CLOSING OF HOSPITALS

Major Gen. Norman T. Kirk, the Surgeon General, announces that army nurses in category III on duty in hospitals scheduled for closing by December 31 will not commence their terminal leave until the hospital closes. Other category III nurses who would ordinarily commence terminal leave November 1 may be retained temporarily but must be relieved from active duty by December 1. In each instance in which a category III nurse is retained on active duty in a hospital slated for closing, her terminal leave must begin not later than December 31.

Army general hospitals scheduled for closing by December 31 are Halloran, Staten Island, New York; Bruns, Sante Fe, N. M.; Mason, Brentwood, Long Island, N. Y., and Wakeman, Camp Atterbury, Indiana. Moore General Hospital, Swannanoa, N. C., will close November 15.

With 75,000 patients in army hospitals throughout the world and a nursing shortage possible because of lowered discharge criteria announced last month, the Surgeon General has been authorized to hold category III nurses until a voluntary recall quota of 1,000 nurses can be effected or until the dates indicated. General Kirk stressed that the welfare of the patient comes first. He feels sure that enough former army nurses will return to duty to meet strict requirements of army medicine. Through

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September 27 there have been 48,350 nurses separated. At the height of the war the Army Nurse Corps totaled 57,000 nurses.

Experienced World War II army nurses who wish to return to active duty are urged to write immediately to the Adjutant General, Washington, D. C., for application forms. They should be less than 34 years of age, physically qualified for general duty, have no dependents under 14 years of age, be unmarried and have an efficiency rating for previous service of 35 or better. They may return for two years or an unlimited period of time. Nurses may wear civilian clothes when not on duty, uniforms they wore to separation centers are authorized, and their return to duty will not prejudice their opportunities for integration into the planned Regular Army Nurse Corps.

STATISTICAL HEALTH SURVEY OF WACS IN THE WAR

The Medical Statistics Section of the Surgeon General's Office has released figures which indicate that the members of the Woman's Army Corps withstood the physical and mental ordeals of war almost as well as male soldiers. The Wacs did not show any common disqualifying weakness as a group. This conclusion is based on the hospitalization records of the 140,000 women who served in the Wacs. While the statistics are confined to nonbattle cases, they include accidental injuries and illnesses due to training or exposure.

The hospital admission rates for diseases during the last year of the war in the United States averaged 506 per thousand persons annually for all military personnel, while those for the Wacs was 793 per thousand annually.

The popular impression that women have more frequent illnesses than men under the same conditions is supported to some extent by these statistics. The common respiratory diseases and influenza comprised the greatest single cause for hospitalization in this country. In this category the statistics show that the women had a rate of 160 per thousand annually as compared with 100 for the army as a whole. The hospitalization record of Wac soldiers for nervous and mental ailments was 37 per thousand annually as compared with 40 per thousand for all troops in this country.

In the European, Mediterranean and Western Pacific theaters where there were large detachments of Wacs the data indicated that, relative to strength and the conditions to which they were exposed, a greater proportion of hospital beds were needed than for the army as a whole. In the Western Pacific between June 1944 and December 1945 a constant 3.7 per cent of the Wacs were hospitalized, as compared with 3.2 per cent of all troops, for disease and nonbattle injury only. In the Mediterranean Theater for about the same period the Wacs hospitalization rate was 3.2 as compared with 3.1 for the army as a whole. Only in the European Theater was the percentage of Wac strength hospitalized less than that for all troops: 2.2, compared with 2.5 per cent. The fact that such illnesses as trench foot and combat fatigue were due to conditions to which the women were seldom exposed would tend to decrease the differential sick rate in favor of the WAC.

MEDICAL DEPARTMENT TECHNICIANS

The number of medical department technicians trained from July 1939 to June 1946 was 114,997. During this period courses for technicians in medicine, surgery, dentistry, laboratory, pharmacy, meat and dairy inspection, medical equipment maintenance, orthopedic machinery, veterinary medicine, sanitation and x-ray were conducted at twelve general hospitals and army medical centers. Since the close of hostilities the number of training centers has been reduced to three enlisted technician schools at Brooke Army Medical Center, Fort Sam Houston, Texas; Fitzsimons General Hospital, Denver, and Wakeman General Hospital, Camp Atterbury, Indiana. The training program now has 5,200 enrolled in the three schools. After the war large numbers of technicians were released to private life, many of whom are now employed in a civilian capacity at the same jobs that they learned in the Army. Civilian hospital laboratories and clinics also employ many ex-soldiers who were trained through schooling and practical experience in a global war which saw fifteen million patients admitted to army hospitals for treatment of practically every ill known to mankind.

WITH THE 8TH ARMY IN OSAKA

The 13th U. S. Army General Hospital in Osaka, Japan, was host October 8 to the third medical conference to be held in Japan. Medical officers throughout Japan attended, including a large group of British Occupation Forces medical officers. Lieut. Col. Michael L. Sheppeck, commanding officer of the 13th General Hospital, gave the opening address, after which all the delegates were introduced. Lieut. Robert K. Curtiss of the 13th General Hospital gave the first paper, on "Primary Pleurisy with Effusion." Lieut. William H. Wilson, chief of the communicable disease section of the hospital, discussed "The Incidence of Tuberculosis in Japan." The afternoon program was given over to discussions from the floor and the presentation of cases.

FIRST PUBLIC USE OF ETHER ANESTHESIA COMMEMORATED

An exhibit of books, prints and manuscripts on the development of anesthesia opened in the Library of Congress, October 16, to commemorate with the Army Medical Library the one hundredth anniversary of the first public demonstration of ether anesthesia. The exhibit will remain on view until November 30. The discovery of surgical anesthesia was purely an American one. The exhibit illustrates the growth of man's knowledge of anesthesia from preanesthetic days until modern times.

BRUNS GENERAL HOSPITAL TO CLOSE

Bruns General Hospital in Santa Fe, N. M., is scheduled for closing on December 31, the War Department has announced. There were twenty-two army general hospitals and Old Farms Convalescent Hospital, Avon, Conn., in operation as of September 27. At the height of the war there were sixty-five army general hospitals.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel Fratis L. Duff

The Legion of Merit was recently awarded to Lieut. Col. Fratis L. Duff, M. C., A. U. S., for outstanding work from April 1944 to April 1946, during which period he served as director of training, chief, department of tropical medicine, and assistant commandant, Army Air School of Aviation Medicine. He was responsible for many advancements in the administration of the school and contributed greatly to medical research. Colonel Duff, who is now serving as assistant commandant of the School of Aviation Medicine, graduated from the University of Oklahoma School of Medicine in 1939 and entered the service July 1, 1940.

Captain Edward B. Tyson

The Bronze Star was recently awarded to Capt. Edward B. Tyson, M. C., A. U. S., of Ocean City, N. J., for meritorious achievement in connection with military operations against the enemy on Luzon, Philippine Islands, from Jan. 9 to April 26, 1945. The citation states that "Captain Tyson, battalion surgeon, performed his duties in a superior manner. On several occasions he personally made reconnaissance to foremost positions to determine satisfactory routes of evacuation, render medical attention to men of front line positions and establish advance medical installations. As a result of his superior organizational ability, sound judgment and advance preparation for every emer-

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gency, loss of life of seriously wounded personnel was kept at a minimum. His unselfish efforts and devotion to duty reflect great credit on himself and the military service." Captain Tyson has also been awarded the Purple Heart and the Combat Medical Badge. He graduated at the University of Pennsylvania School of Medicine in 1941 and entered the service Aug. 1, 1942.

Lieutenant Colonel Elton R. Blaisdell

The Bronze Star medal was recently awarded to Lieut. Col. Elton R. Blaisdell of Portland, Maine, "for meritorious service in connection with military operations, as chief of medical service, 67th General Hospital, from Dec. 5, 1942 to May 8, 1945. Lieutenant Colonel Blaisdell," stated the citation, "was directly responsible for the organization and training of the personnel of his section and for the treatment of all medical cases admitted to the hospital. His broad professional knowledge and untiring devotion to duty reflect high credit on himself and the armed forces of the United States." Dr. Blaisdell graduated from Bowdoin Medical College in 1915 and entered the service Sept. 1, 1942.

Major Harry T. Zankel

The Commendation Ribbon was recently awarded to Major Harry T. Zankel of Brooklyn. The citation read, in part, "Your service with the Medical Department when compared with others of the same grade of similar position has been exceptional, and I wish to commend you for your outstanding contribution as chief of physical therapy and occupational therapy sections, LaGarde General Hospital, New Orleans, from July 1944 to September 1945." Dr. Zankel graduated from Long Island College of Medicine, Brooklyn, in 1925 and since his release from the service he has become chief of physical medicine and medical rehabilitation at Crile Veterans General Hospital, Cleveland.

VETERANS ADMINISTRATION

GENERAL HOSPITAL AT ATLANTA

The Veterans Administration announces that the President and the Federal Board of Hospitalization have approved the construction of a 750 bed general medical and surgical hospital at Atlanta, Ga., for treatment of veterans in that area, subject to the availability of funds, and that the plans for the construction of a 333 bed addition to the present Veterans Administration hospital in Atlanta have been canceled. The existing 317 bed general medical and surgical hospital at Atlanta will be converted to a hospital for the treatment of chronic general medical and surgical patients and will be operated as an integrated unit of the new hospital. The site has not yet been selected, although it is desirable that the general medical and surgical activities of the Veterans Administration in the city be located as close as possible to Emory University Medical School in order to insure the active cooperation of medical personnel as consultants and residents. The great distance of the present hospital from the medical school precludes this factor, but it will serve efficiently as a hospital for the care of chronic cases.

HOSPITALS IN NEW YORK

Specifications for three veterans' hospitals in New York State have been approved by the Office of the Army Chief of Engineers and by the Veterans Administration. They are to be located at historic Fort Hamilton in Brooklyn, at Albany and at Buffalo and are part of the $600,000,000 construction program involving 76 hospitals and 23 major additions undertaken for the Veterans Administration by the army engineers. Each of the three hospitals will contain 1,000 beds, of which 800 are for general medical and surgical patients and 200 for neuropsychiatric patients. All three are of fireproof construction and embody the most modern hospital criteria developed as a result of experience in the last war. All three are designed to furnish utmost in care and comfort to the veteran patients.

The Fort Hamilton hospital will be located on a beautiful stretch of ground directly across the bay from Sandy Hook. The Albany hospital will be located on a site of about 20 acres near the geographic center of the city and across New Scotland Avenue from the Albany City Hospital. In Buffalo the site is in the northeast section of the city. The back campus and the athletic field of the University of Buffalo are located directly across Bailey Avenue. The remainder of the surrounding area is a first class residential district. The main building on each site will consist of a basement and ten other complete floors. The Veterans Administration hospital program to be carried out by the army engineers is said to be the largest hospital program in history.

COMPENSATION FOR WIDOWS AND CHILDREN

The Veterans Administration has announced that the widows and about 90,000 children of husbands and fathers who died as a result of service in the second world war are receiving monthly compensation benefits. The compensation for each widow is $60 per month and $18 for one child plus $15.60 for any additional children. If both parents are dead the child's legal guardian receives $30 per month. If there are two children the guardian receives $45.60 plus $12 for each additional child.

INCREASE IN VETERAN PATIENTS

The Veterans Administration announced October 7 that there had been since V-J day a 29 per cent increase in the number of veteran patients in its hospitals and homes and in hospitals under contract. The total on September 12 was 104,612, compared with 81,081 on V-J day. The largest increase occurred among World War II veterans with non-service connected disabilities. The number of such patients rose from 10,338 to 24,437, an increase of 136 per cent.

TAKE OVER ANOTHER ARMY HOSPITAL

The Veterans Administration will take over the installation (formerly the Newton D. Baker General Hospital) at Martinsburg, W. Va., as soon as the War Department's inventory has been completed. The personnel including the physicians and nurses are now being recruited. It is believed that this hospital will be used by the Veterans Administration until new veterans' hospitals are completed in West Virginia and Pennsylvania.

PERSONALS

Dr. Horace C. Dodge, for several years superintendent of the veterans' hospital at Memphis, Tenn., was recently honored for his long service in the Veterans Administration when some 450 members of the staff and employees of the hospital presented him at an informal surprise ceremony with twenty-seven American beauty roses, one for each year of his service. Dr. Dodge will reach the retiring age in a few months and plans then to live in Asheville, N. C. He served in the medical corps of the Army overseas in World War I.

Dr. Joseph P. Cohen, Newton Center, Mass., a former lieutenant colonel in the Army Medical Corps and surgeon in chief of gynecology-obstetrics at Boston City Hospital for fifteen years, has been appointed clinical director of the Cushing Veterans Administration Hospital at Framingham, Mass. Previous to this appointment he was head of the gynecology department of the Beth Israel Hospital, Boston, clinical professor in gynecology at Tufts Medical School and instructor in obstetrics at Harvard Medical School. He is a veteran of twenty-seven months' overseas with the Army in England and with the military government in Normandy, Belgium, the Netherlands and in Augsburg, Germany, where he headed the public health section of the military government detachment. A graduate of Harvard University and Harvard Medical School, he was recently appointed honorary consulting obstetrician at the Boston City Hospital.

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PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Arizona

Engelder, Arthur E.....Tucson
Henderson, Charles E.....Phoenix
Sitkin, Robert S.....Phoenix
Stacey, John W.....Tucson

California

Adams, Elliott L.....Lodi
Addison, Cornelius P.....Culver City
Aker, Cecil G.....Santa Ana
Allington, Robert R.....Los Angeles
Anderman, Lester B.....Los Angeles
Beardsley, Lloyd C. Jr.....Altadena
Benjamin, MacBroom.....Los Angeles
Bogdonovich, Andrew C.....San Francisco
Bolkovatz, Joseph F.....Fresno
Brode, William R.....San Francisco
Campbell, Wallace D.....Glendale
Daniels, Charles J.....Los Angeles
Dean, James S.....Los Angeles
Dodson, John W.....Los Angeles
Dooley, Robert F.....San Francisco
Duisenberg, Charles E.....Los Gatos
Ferree, Arthur C.....Brea
Gilrane, Joseph J.....Pasadena
Harp, Vernon C. Jr.....Los Angeles
Hoo, Lawrence J.....San Francisco
Hosmer, Rawson F.....West Los Angeles
Jacques, Kenneth B.....Los Angeles
Jones, Warren E.....San Francisco
Kenney, Eugene W.....Oakland
Lansing, James D.....Los Angeles
Lawrence, Edgar C.....San Jose
Leeper, Roy W.....San Bernardino
Lewis, Charles F. Jr.....Oakland
MacFarlane, Eugene L.....Los Angeles
Marsh, Paul K. Jr.....Los Angeles
Morgan, John A.....Los Angeles
Preston, Francis G.....Visalia
Reed, Wallace A.....Los Angeles
Richter, Maurice R.....Los Angeles
Russell, Frank A.....Sacramento
Scharf, George.....Los Angeles
Smith, Richard C.....Alhambra
Wendt, Douglas D.....Santa Clara
Wood, Walter L. Jr.....Los Angeles
Zell, Harry J.....San Marino
Zimmerman, Murray C.....Whittier

Connecticut

Cherry, Joseph B.....Norwich
Mainer, Raymond G.....New Britain
O'Brasky, George H.....New Haven
Pasternak, Maxwell.....New Haven

Delaware

Cruchley, Allan R.....Middletown
Dougherty, Charles J.....Wilmington
Goldberg, Maurice.....Wilmington

District of Columbia

Barbour, Gerald M.....Washington
Berry, Lorenzo R.....Washington
Brick, Irving B.....Washington
Crilley, Francis J. Jr.....Washington
Cromer, Horace E. Jr.....Washington
Grollman, Jaye J.....Washington
Hadley, Gilbert G.....Washington
Mitchell, Edwin C.....Washington
Moore, Granville N.....Washington

Florida

Crosslin, Neill O.....Daytona Beach
Dickey, James W. Jr.....Fort Lauderdale
Finner, Richard W.....Tallahassee
Rosenfeld, Charles.....Miami Beach

Idaho

Jenkins, Robert D.....Boise
Mabey, Joseph F.....Malad City
Ojers, Gaylord W.....Twin Falls
Packer, Clyde D.....Rexburg
Potts, Claude H. Jr.....Coeur d'Alene

Illinois

Abbott, Gordon W.....Elgin
Allison, Olaf W.....Danville
Anderson, Enor G.....Rockford
Banks, Sam W.....Chicago
Barter, Robert H.....Harvard
Carlo, Joseph F.....Calumet City
Carney, John F.....Peoria
Crost, Edwin A.....Chicago
De Pasquale, Leonardo.....Chicago
Fein, Alfred L.....Chicago
Frye, Jacob A. Jr.....Evanston
Goldberg, Erwin L.....Chicago
Greenspon, Irwin L.....Chicago
Katz, Julius.....Alton
Makinson, James T.....Chicago
Modica, Charles S.....Chicago
Naughton, Thomas J.....Chicago
Plassman, Walter P.....Elmhurst
Pope, John P.....Benton
Przepiorski, John B.....Chicago
Reaney, Burnell V.....Chicago
Sherrick, Joseph C.....Monmouth
Shimizu, Keichi.....Chicago
Smith, Paul E.....Palestine
Spiteri, William B.....Chicago
Tuttle, Warren D.....Harrisburg
Venckus, Julius.....Chicago
Welch, William B.....Chicago

Indiana

Aldrich, Harry D.....Angola
Boerger, Victor L.....Fort Wayne
Carlson, Norman R.....Michigan City
Freed, John E. Jr.....Terre Haute
Gillespie, Charles F.....Indianapolis
Griffith, James W.....Sheridan
Muhleman, Charles E.....LaPorte
Raines, Dale S.....Terre Haute
Stayton, Chester A.....Indianapolis

Iowa

Buchman, Delbert M.....Ottumwa
Clothier, John G.....Perry
Evers, Lorance B.....Iowa City
Mieras, Marion D.....LeMars

Kansas

Aldis, Henry.....Kansas City
Arthur, John M. III.....Kansas City
Bair, Howard V.....Wichita
Baumhardt, Edward E.....Hutchinson
Buser, Julian W.....Wichita
Christian, Edward R.....Rozel
Gleason, Kenneth J.....Topeka
Glicksman, Herbert Y.....Topeka
Hoopingarner, James L.....Baldwin City
McIntire, Robert W.....Olathe
MacQueen, John C.....Manhattan
Thacher, Luin K.....Waterville
Weed, Randal.....Lawrence

Kentucky

Donnelly, Joseph L.....Ft. Thomas
Galvin, Ross M.....Louisville
Harris, Raymond H.....Lexington
Holbrook, Thomas J.....Kentucky
Mudd, Richard E.....New Haven
Payne, Walter A. Jr.....Corbin
Roby, Alma L.....Mt. Vernon
Rosso, Weymar A.....Louisville

Louisiana

Adam, Alfred L.....New Orleans
Anderson, Charles E. Jr.....Shreveport
Bowers, Sireno E. Jr.....Boyce
Clark, Archibald F. Jr.....New Orleans
Culotta, Vincent A.....New Orleans
Davis, Julius T. Jr.....New Orleans
Ferguson, Edward B. Jr.....New Orleans
Johnson, Clay H.....Shreveport
Vincent, Richard W.....Sulphur
Wiernik, Harris.....New Orleans

Massachusetts

Adams, Crawford W.....Longmeadow
Allen, Fred H. Jr.....Chestnut Hill
Allendorf, Francis J.....Walpole
Bowditch, Sarah H.....Cambridge
Buckley, William R.....Medford
Corcoran, John J.....West Roxbury
Crocker, Oscar.....Pepperell
McNichols, Michael T.....Cambridge
Ossen, Paul I.....Everett
Richardson, Edward R.....Brookline
Saunders, Gordon A.....Arlington
Sweeny, Donald N. Jr.....Boston
Tighe, Thomas J. G.....Lowell
Warren, Richard.....Boston
Zamcheck, Norman.....Swampscott

Michigan

Alexander, Allen.....Detroit
Beigler, Jerome S.....Detroit
Cook, Hugh K.....Alpena
Dodds, Norman I.....Detroit
Easterly, Robert L.....Ann Arbor
Elliott, Lyle D.....Ann Arbor
Evans, William A. Jr.....Detroit
Kearney, Joseph B.....Grand Rapids
Latourette, Howard B.....Flint
Miller, Sidney S.....Dearborn
Pendy, George V.....Detroit
Purcell, Francis L. Jr.....Ann Arbor
Reames, Harold R.....Grand Ledge
Schroeder, John M.....Vulcan
Trapasso, Tony J.....Sault Ste. Marie
Walters, John F.....Battle Creek
Webster, William O.....Ionia
Weeks, Vernon L.....Detroit

Minnesota

Anderson, Franklin C.....Cloquet
Browne, Harry C.....Rochester
Brussell, Albert S.....St. Paul
Chucker, George N.....Bovey
Church, John M.....Minneapolis
Custer, Monford D. Jr.....Rochester
Eklund, Alfred W.....Mt. Iron
Hestenes, Erling G.....Northfield
Jacobs, Lyle S.....Minneapolis
Kearney, Rochfort W.....Mankato
McCloud, Charles N. Jr.....St. Paul
Neander, John F.....St. Paul
Noonan, Dan F.....Minneapolis
Rice, Fred A.....St. Cloud
Sher, Lewis.....Minneapolis

Missouri

Alsobrook, Thomas W.....St. Louis
Andrews, Berneil W.....St. Joseph
Baker, Cecil C.....St. Louis
Birsner, Frank H.....St. Louis
Blaney, Loren F.....St. Louis
Blumenthal, Herman T.....St. Louis
Bristow, Robert B.....Princeton
Daley, Lyle M.....Hamilton
Dillon, John B.....St. Louis
Esslinger, Arthur T.....Clayton
Hageman, Paul O.....Clayton
Holden, Raymond F. Jr.....St. Louis
Hutcheson, Zenas W., Jr.....Bolivar
Levey, Harry B.....Kansas City
Limbaugh, Walter R.....Hayti
McRaven, Claude.....Marston
Magness, Guy N.....University City
Martens, Irvin J.....University City
Petersen, Drew M.....St. Louis
Trowbridge, Barnard C.....Kansas City
Weinhaus, Robert S.....St. Louis
Zinn, Houston J.....Stotts City

Montana

Coriell, Lewis L.....Stanford
Graham, John H.....Billings
McCartney, Charles P.....Bozeman
Welch, John L.....Bozeman

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PHYSICIANS SEPARATED FROM SERVICE

Nebraska

Brewster, Donald E.....Holdrege
Heiser, Ervin N.....Lincoln
Meyer, Leslie C.....Omaha
Round, John N.....Ord
Schilke, Elliott W.....Daykin
Sonnenberg, Alvin F.....Lincoln
Thomas, Richard L.....Hebron
Wilson, Rex W.....Peru
Wittstruck, Kenneth P.....Lincoln

New Jersey

Albert, Sidney.....Lakewood
Byrne, John J.....Morristown
Carbone, Hubert A.....Orange
Dembinski, Thomas H.....Trenton
McKinney, Delbert W.....Mount Holly
Mason, Alvin S. Jr.....Salem
Murphy, Arthur G.....Upper Montclair
Silver, Albert M.....West Orange
Silver, Michael W.....Paterson

New York

Abelson, Albert.....Forrest Hills
Abelson, Louis C.....Arverne, L.I.
Ackerman, Jacob H.....Bronx
Alverson, G. Carl Jr.....Syracuse
Ameduri, Ardow.....Utica
Anderson, Hugh G.....Troy
Brugman, Robert B.....New York
Canizares, Orlando.....New York
Cassino, Frank A.....Richmond Hill
Davis, Harold J.....Nassau
Duncan, Peter A.....New York
Feldman, F.....New York
Friedlich, Allan L.....New York
Hellman, Jack M.....Watertown
Ingham, Harrington V.....New York
Janoff, Lawrence A.....New York
Kien, George J.....New York
Maisel, John J.....Buffalo
Masselink, Rollo J.....New York
Metrowsky, Arnold M.....Albany
O'Toole, John S.....Potsdam
Rummel, Frank J.....Hollis, L. I.
Ryan, Raymond C.....Jamaica, L. I.
Sabo, Jack T.....New York
Sokoloff, Solomon.....Brooklyn
Solomon, A. Alfred.....New York
Thurman, George E.....New York

North Carolina

Gutmann, Helmut R.....Chapel Hill
Nifong, Frank M.....Winston-Salem

North Dakota

Gunderson, Robert L.....Aneta
Hoag, Richard M.....Bismarck
McCoy, Kenneth L.....Wildrose
Ruud, Edward T.....Grand Forks

Ohio

Anderson, Gilbert I.....Cleveland
Anderson, Hugh R. Jr.....Cleveland
Besst, Stacey A.....Canton
Brown, Frank A. Jr.....Cincinnati
Calloway, Arthur E.....Columbus
Daley, James B.....Niles
Hawley, Sherman R.....Toledo
Ickes, Howard J.....Canton
Kadull, Paul J.....Cleveland
Kaufman, Joseph W.....Newton Falls
Lehmiller, Karl L.....Stark
Leslie, Roland A.....Lockland
Mahaffey, Howard W.....Columbus
Morris, Lucien E.....Cleveland Heights
Pierson, Marshall J.....Akron
Proudfit, William L.....Cleveland
Roach, Frederick E.....Lakewood
Schmidt, Delbert C.....Newark
Spears, George N.....Ironton
Sprigley, Robert S.....Athens
Test, Pasquale S.....Youngstown
Vernier, Paul C.....Stryker
Waag, Donald A.....Dayton

Oklahoma

Adelman, Frank L.....Haskell
Ambrister, Jerome W.....Norman
Graybill, Charles S.....Lawton
Harms, Edwin M.....Blackwell
Rollow, John A. III.....Oklahoma City

Oregon

Adams, John C.....Portland
Atkins, Charles B.....Portland
Beber, Ernest F.....Portland
Berthelsdorf, Siegfried R.....Beaverton
Boyd, Harold M. E.....Portland
Brownell, Iverson O.....Ocean Lake
Callicrate, Dominic L. Jr.....Portland
Chesledon, Wayne A.....Portland
Cleary, Joseph P.....Portland
Done, Robert W.....Portland
Dunlap, Jack E.....Portland
Easton, John B.....Pendleton
Fagan, Philip J.....Portland
Galante, Peter J.....Chiloquin
Marbut, William M.....Hermiston
Needham, Winfield H.....Salem
Neurath, Otto.....Portland
Parks, Earl W.....Portland
Rinehart, Robert E.....Wheeler
Rosenberg, Norman J.....Portland
Wood, Gregg D.....Portland

Pennsylvania

Allison, Jackson W.....York
Alpert, Zola S.....Ellwood City
Altenhoff, William A.....Pittsburgh
Bannister, William B. Jr.....Imperial
Bender, John A.....Philadelphia
Brandt, John P.....Newport
Brunner, Austin F.....Newport
Campbell, William J.....State College
Chandler, Swithin Jr.....Paoli
Curtin, Jerome E.....Jeanette
Dierolf, Leon W. Jr.....Lancaster
Dodd, Elbert W. Jr.....Huntington
Hesch, Joseph A.....Aldan
Kolucki, Frank R.....Dickson City
Levitt, LeRoy P.....Plymouth
McClenahan, William U.....Philadelphia
McKee, Edward E.....Rochester
Medoff, Harold S.....Philadelphia
Piergeorge, Andrew R.....Pittsburgh
Saar, Gregory.....Lancaster
Shearer, John L.....Pittsburgh
Sipe, William U.....Youngstown
Young, Ellis W.....Pittsburgh
Zimmerman, Rubin.....Kingston

Rhode Island

Barrett, John T.....Providence
Blade, Milo O.....W. Warwick
Darrah, Harry E.....Providence
Ferraro, Douglas.....Westerly
Hanna, Louis E.....Central Falls
Leet, William L.....Providence
Reich, Jacob.....Providence
Reid, William A.....Providence
Sheehan, Linus A.....Providence
Temple, Francis E.....Providence

South Dakota

Franz, Elmer M.....Sioux Falls
Gilbert, Freeman J.....Belle Fourche
Hanten, Stephen J.....Watertown
Manning, Don H.....Custer
Seacat, Dennis H.....Alexander
Seacat, James H.....Alexander

Tennessee

Barnwell, Columbus H.....Chattanooga
Ellis, Thomas J.....Nashville
Reed, John S.....Kingsport
Spaulding, Joe B.....Memphis
Webb, Claude R.....Memphis
Williams, Edwin L.....Maryville

Texas

Abrams, Raymond H.....Dallas
Adams, Walter B. Jr.....Wichita Falls
Alexander, Arthur B.....Spur
Allen, John C.....Henderson
Boice, Edward H.....Houston
Connor, Marvin M.....Cumby
Davis, Roy N.....El Paso
Harkins, James E.....Dallas
Kidd, Frank H. Jr.....Dallas
Russo, Galileo M.....Waco
Terry, Jay G.....Dallas
Woods, Haddon B.....Refugio

Utah

Feeny, Thomas M.....Ogden
Jackson, Elvon G.....Salt Lake City
Jensen, Gordon M.....Hyrum
Peterson, Preston H.....Salt Lake City
Soffe, George W.....Bountiful
Spendlove, George A.....Richfield
Steed, Walter D.....Clearfield

Virginia

Blunt, Charles P. III.....Lynchburg
Boling, John S.....Burkes Garden
Dunn, Edward H.....Portsmouth
Irwin, Carl W.....Harrisonburg
Jacobson, Abraham M.....Roanoke
Moorman, John H. Jr.....Harrisonburg
Nicklin, Walter S. Jr.....Alexandria
Shearburn, Edwin W.....Charlottesville
Smith, William C.....Creeds
Tucker, Weir M.....Richmond
Twyman, James B.....Charlottesville
Viccellio, Asa W.....Chatham

Washington

Anderson, Edward R.....Tacoma
Burns, Francis J.....Spokane
Gray, Cary P.....Longview
Hartsuck, David S.....Olympia
Irwin, John R.....Seattle
Ritter, Vern W.....Seattle
Salter, Edgar R.....Spokane
Wilson, Lawrence M.....Olympia
Wolf, Howard H.....Seattle

West Virginia

Antalis, Angelo J.....Weirton
Ashton, Dudley C.....Beckley
Costanzo, Vincent A.....Wheeling
Evans, Edward J.....Huntington
Harshbarger, Rodger W.....St. Albans
Hogshead, Ralph Jr.....Mammoth
McDonald, Brown Jr.....Montgomery
Mesaros, Paul Jr.....Follansbee
Miller, French R.....Wheeling
Moel, Morris.....Huntington
Mullens, Henry S.....Wayne

Wisconsin

Butz, Robert C.....Darlington
Fischer, William A.....Madison
Frey, William B.....Fox Lake
Gissal, Frederick W.....Sussex
Murphy, Joseph E.....Milwaukee
Poser, John F.....Columbus
Schneider, O. Mark.....Independence
Tax, Archie H.....Milwaukee
Yordy, Frank S.....Fond du Lac

Wyoming

Enterline, Joseph D.....Casper
Horton, William O.....Newcastle
Sanders, Reon H.....Pine Bluff
Simon, Felix E.....Riverton
Stanfield, Clyde E.....Cheyenne
Stewart, John C.....Thermopolis

Canal Zone

Senzer, David.....Ancon

Canada

Chasse, Nathaniel J.....Henri Levis P. 2

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MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Alabama

Alford, Almond W.....Birmingham
Blackburn, Lester H.....Tuscumbia
Broadhead, Hal D.....Montgomery
Darden, Samson H. Jr.....Tuscaloosa
Day, Charles H.....Decatur
Douglas, Gilbert F. Jr.....Birmingham
Hudson, Perry B.....Montgomery
Mighell, Joseph R. III.....Mobile
Richardson, William R.....Birmingham

California

Almlund, Nels W.....San Jose
Allen, Richard G.....Oakland
Arnstein, Lawrence H.....San Francisco
Bain, James B.....Coronado
Barton, Richard T.....Vista
Beem, Richard T.....Los Angeles
Craig, John M.....San Fernando
Edwards, Robert L.....Mendocino County
Goldberg, Isadore M.....Los Angeles
Greer, William L.....Los Angeles
Hayden, Joseph D.....Long Beach
Hutchinson, Glenn D.....San Jose
Kasch, James W.....Ukiah
Kreutzer, Frederick L.....San Francisco
Likos, Joseph J.....Los Angeles
Long, Albert E.....Laguna Beach
Mantele, Kenneth A.....Los Angeles
Maronde, Robert F.....Los Angeles
Marsh, Earle M.....San Francisco
Neumann, Roy A.....Visalia
O'Donnell, Bernard V.....Vallejo
Pribus, Frederick T.....Los Angeles
Reinertsen, Bernhard R.....Los Angeles
Sanderson, Herbert C.....San Francisco
Schultz, Ernest B.....Laguna Beach

Colorado

Bigelow, Eugene V.....Denver
Boyd, Thomas M.....Denver
Cassidy, Charles A.....Denver
Danahey, Lawrence K.....Denver
Greiner, David J.....Denver
Harding, Dean H.....Denver
Hirschberg, James C.....Glenwood Springs
Kemper, Clarence M.....Boulder
Maul, Eugene M.....Denver
Spencer, John R.....Denver
Thurston, Walter D.....Denver
Walker, Robert B.....Gunnison

District of Columbia

Adams, George D.....Washington
Bradley, Joseph W.....Washington
Cimmino, Christian V.....Washington
Daley, Edmund F.....Washington
Dorman, Hamilton P.....Washington
Milkie, Frederick E.....Washington
Skinner, James W.....Washington
Wharton, Ulysses S.....Washington
Zeller, William W.....Washington

Illinois

Aaberg, Monrad E.....Peoria Heights
Andresen, Richard H.....Chicago
Bakos, Augustus C. P.....Chicago
Becker, Robert M.....Chicago
Dritz, Harvey F.....Chicago
Eiseman, Charles.....Northbrook
Frank, Hugh A.....Chicago
Frankovelgia, N. Richard.....Chicago
Hooker, James W.....Springfield
Horton, Thomas C. Jr.....Chicago
Johnson, LeBaron P.....Chicago
Magill, Hubert C.....Decatur
Manson, Almon A.....Chicago
Marlay, Myron G.....Chicago
Martins, James K.....Chicago
Petrus, Edmund A.....Chicago
Schiff, George N.....Chicago
Swigart, LaVern L.....Chicago
Yanow, Mitchell.....Madison

Indiana

Brennan, James E.....Bedford
Custis, Donald L.....Goshen
Davis, Joseph B.....Marion
Ganser, Richard A.....Mishawaka
McDonald, Frank C.....Linton
Ridgway, William L.....Evansville
Strange, Dempsey C.....Indianapolis
Williams, Hugh L.....Martinsville

Kansas

Atherton, Lytle D.....Louisville
Baecker, Marvin P.....Kansas City
Bartell, Charles B.....Topeka
Fletcher, Louis R.....Scott City
Floyd, Glenn.....Sedan
Howard, Richard A. R.....Arkansas City
Iwig, Samuel C. Jr.....Topeka
Klassen, Daniel S.....Lehigh
McClure, James A.....Topeka
McFarland, Louis R.....El Dorado
Mallory, Joseph R.....Arlington
Muck, Floyd E.....Clay Center
Neis, Harry B.....Wellsville
Perll, Maurice F.....Frankfort
Shepanek, Leonard A.....Emporia
Willhot, Raymond G.....Clay Center

Louisiana

Barnett, Dalcho D.....Baton Rouge
Hearin, Willard C. Jr.....New Orleans
Kelly, Roy A.....Destrehan
Knapp, Leonard K.....Lake Charles
McCormick, Joseph H. Jr.....Monroe
Nunez, James R.....Abbeville
Plauche, John B.....Morganza
St. Romain, Murphy J., Jr.....New Orleans
Sartor, Fred W.....Alto
Simmons, William M.....Baton Rouge
Storer, John J.....Iowa
Torre, Douglas P.....New Orleans
Tugwell, Otis L. Jr.....Farmerville
Wells, Wilbur G.....Colfax

Massachusetts

Arbetter, Albert H.....Chestnut Hill
Beers, Sherman J.....Plymouth
Benton, Philip E.....Orleans
Bering, Edgar A., Jr.....Brookline
Brown, Chester W.....Worcester
Dole, Vincent P. Jr.....Brookline
Emerson, Roger H.....South Weymouth
Gevalt, Frederick C., Jr.....W. Roxbury
Gibson, Sam T.....Boston
Grenda, Albin N.....Lawrence
Hagerty, Robert F.....Boston
Hale, George I.....Boston
Little, David M. J.....Cambridge
Lovell, Charles V. duB.....Brookline
Lydon, Roy T.....Norwood
MacGillivray, Donald J.....Dorchester
McLaughlin, James A.....Ocean Bluff
Mason, Andrew V.....Boston
Paul, Oglesby.....Boston
Robinson, Burton D.....Brighton
Romney, Seymour L.....Brookline
Rosen, Sidney W.....Everett
Sands, Kenneth F.....Boston
Sexton, Richard P.....Winchester
Stoddard, Eben.....Marblehead
Sullivan, Donel R.....Brookline
Vail, William D.....Hyannis
Watters, Franklin B.....Longmeadow

Michigan

Bauer, Lester E.....Athens
Baum, William C.....Saginaw
Borin, Maurice C.....Detroit
Huggett, Clare C.....Lansing
Moore, Earl V. Jr.....Ann Arbor
Rawlings, Donaldson F.....Stevensville
Ries, Richard G.....Detroit
Whitehouse, Keith H.....Morenci

New Jersey

Altschuler, Bernard M.....Bayonne
Benko, George S. M.....Perth Amboy
Breeden, Brewster C.....Glen Ridge
Catainia, Joseph P.....Garfield
Closson, Edward W. Jr.....Lambertville
Comando, Edward N.....Maplewood
Halsted, George O.....Englewood
Hughes, David W.....Cape May
Jacobs, Alan L.....Union
Kain, Thomas M. Jr.....Collingswood
Kolarsick, Albert J.....Newark
Morris, Robert S.....Merchantville
Murray, Simon D.....Arlington
Neil, Carleton M.....North Bergen
Parker, Philip J.....Newark
Sattenspiel, Edward.....Jersey City
Siss, Alfred A.....Paterson

New York

Ayer, John L.....Syracuse
Barrett, John L. Jr.....Minetto
Butler, John J.....Rochester
Carmel, Philip D.....Brooklyn
Collins, Robert M.....Potsdam
Crohn, Edward B.....New York
Deming, Quentin B.....New York
Eaton, Earl H. Jr.....Bronxville
Edward, Jess.....Freeport
Fett, Herbert Charles, Jr.....Brooklyn
Gonzales, Robert T.....Woodside, L. I.
Grella, Anthony V.....Great Neck
Haswell, Howard Pruyn.....Rochester
Haug, Chester A.....Albany
Jones, Hyzer W. Jr.....Rochester
Katz, Julius H.....Beverly
Koss, Theodore W.....Hamburg
Ladin, Philip.....New York
Lerner, Hobart A.....Rochester
Lombardo, Anthony J.....New York
Martin, Geoffrey M.....New York
Meehan, Donald J.....New York
Nilsson, Donald E.....Rockville Center
O'Shea, James A.....Brookyln
Pearce, Frank A.....Yonkers
Pullman, James Jr.....Mattituck
Reader, George G.....Rye
Ruva, Joseph J.....Syracuse
Schiffer, Morton A.....New York
Smith, Eugene J.....Brooklyn
Spence, Harold G.....Riverdale
Vigorita, John L.....Brooklyn
Walker, William H.....Lynbrook

Pennsylvania

Beierle, Joseph M.....Pittsburgh
Brenner, Angus L.....Aldan, Clifton Hts.
Cole, Walter C.....Erie
Edwards, Frank T.....Pittsburgh
Flanagan, John C.....Philadelphia
Hartner, Earl.....Pittsburgh
Kirkland, William G.....Newton Square
Kneeland, Malcolm E.....Pittsburgh
Lentz, Edmund T.....Wyalusing
Loftus, Thomas A., Jr.....Philadelphia
Mayer, Donald F.....Wyncote
Miller, Andrew P.....Philadelphia
Rosch, Julius C.....Altoona
Saracco, Thomas R.....Boston
Tomlinson, John L.....Philadelphia
Urie, John C.....Drexel Hill

West Virginia

Cooper, Harry F.....Athens
Gatherum, David H.....Athens
Hunt, Russell B.....Clendenin
Hunter, Jack W.....Buckhannon
Menk, Karl F.....Holden
Mikita, William B.....Weirton
Slaughter, James F.....Charleston
Smith, Delbert C.....Rivesville
Vick, Clyde W. Jr.....Jenkinjones
Walker, William D.....Charleston

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Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in Health Officers.—Dr. James L. Carpenter, Huntsville, has been appointed health commissioner of Madison County.——Dr. Charles J. Roehm, formerly of Eureka, Ill., has been appointed health officer of Walton County.——Dr. Claude D. Killian, Fort Payne, has resigned as acting health officer of DeKalb County.

Radiologists Organize. — The Alabama Radiological Society was recently organized with Dr. James A. Meadows, Birmingham, president; Dr. Courtney S. Stickley, Montgomery, vice president, and Dr. John D. Peake, Mobile, secretary-treasurer. The next meeting will be held during the annual session of the Alabama State Medical Association.

CALIFORNIA

Personal.—The employees of the San Francisco City and County Department of Health recently presented Dr. Jacob C. Geiger with a scroll to mark his fifteenth anniversary as director and in recognition of his services.——Dr. Mary B. Dale, Pasadena, has been appointed epidemiologist for the Los Angeles County Health Department. Newspapers report that she is the first woman to hold such a position in the county.

Public Health Appointments.—The University of California School of Public Health announces these new appointments: Dorothy B. Nyswander, Ph.D., professor of health education; Dr. Leon Lewis, recently released from military service and formerly of Newark, N. J., and New York, professor of industrial health, and Miss Edith Lindsay, recently a member of the faculty at Mills College, assistant professor in hygiene.

Grant for Physical Therapy Training.—Increased enrolment of students in the physical therapy training course of the University of California Medical School, San Francisco, has been made possible by a grant of $6,336 from the National Foundation for Infantile Paralysis, New York. Among the teaching essentials aided, the new grant will provide 236 semester hours in anatomy, physics, pathology, physiology, nursing, pediatrics and neurology. The courses, given under the direction of Dr. Frances Baker, San Francisco, include specialized treatment of infantile paralysis patients. To date, the national foundation has provided the University of California Medical School with $14,336 to aid in the training of physical therapists at that institution.

Proposed Development of Tuberculosis Facilities.—Within the next two years the Jewish Consumptive Relief Association of Los Angeles will undertake to raise $7,215,000 for the creation of a national medical center on the site of the Los Angeles Sanatorium at Duarte. The plan to extend the present tuberculosis facilities of the sanatorium to 350 beds and the establishment of 350 additional beds for the treatment of other diseases was approved unanimously at the Victory Convention of the Jewish Consumptive Relief Association, which was held in Los Angeles in August. The plan calls for the further expansion of the program, when funds are made available, to include a thoroughly equipped research department and eventually a medical school, a school for the training of medical technicians and a nurses' training school.

GEORGIA

Grants for Research.—Members of the faculty of the University of Georgia School of Medicine, Augusta, through grants of money received from the U. S. Public Health Service, will be able to carry forward several important research projects, it was recently announced. Dr. Robert B. Greenblatt and Robert B. Dienst, Ph.D., were allocated $5,550 for study of venereal diseases other than syphilis and gonorrhea. Dr. Virgil P. W. Sydenstricker receives $12,550 for research in internal medicine. An award of $14,375 was made to Dr. Harvey M. Cleckley for research in psychiatry. A part of the program will deal with electroencephalography. Dr. Cleckley's work in that field, under the new grant, will be the first studies of that kind made at the medical school.

Benefactors to Library Honored.—Bronze plaques memorializing Dr. William J. Young, Fairfax, S. C., Dr. Flournoy Carter, Augusta, and Mrs. Julia Carter Moore will be placed in the library of the University of Georgia School of Medicine, Augusta, soon. Dr. Young left a legacy of $25,000 to the medical school library when he died in 1920. Mrs. Moore bequeathed $10,000 to the medical school library in 1926 as a memorial to her father, the late Dr. Flournoy Carter. The bequest honoring Dr. Carter was used in renovating the library, and a similar amount, given by the Rockefeller Foundation, was used to purchase new books. Most of the books now being purchased for the library are bought with the income from Dr. Young's legacy. The library now has 17,536 books and receives 240 current journals published in English, French and German. The plaques will be moved to the new library whenever a new building is added to the campus under plans now being considered.

ILLINOIS

Personal.—Dr. and Mrs. Mirza P. DuComb, Patoka, observed their fiftieth wedding anniversary August 31.——Nellie P. Watts, Ph.D., New York, has been appointed research pharmacologist at the Abbott Laboratories, North Chicago.

Chicago

Branch Meetings.—The North Side Branch of the Chicago Medical Society will be addressed November 7 at the Drake Hotel by Drs. Grayson L. Carroll, St. Louis, and Arthur Steindler, Iowa City, on "Bladder Tumors" and "Revised Concepts of Infantile Paralysis—Their Application to Management and Treatment" respectively. Subsequent meetings of the branch will be addressed by:

Dr. Stanley P. Reimann, Philadelphia, December 5, The Methyl Group and Cirrhosis of the Liver.
Dr. Virgil S. Counseller, Rochester, Minn., December 5, The Applications of Vaginal Hysterectomy.
Dr. Irving S. Wright, New York, February 6, The Use of Anticoagulant Therapy in the Treatment of Diseases of the Heart and Blood Vessels.
Dr. John B. Youmans, Chicago, April 3, Nutritional Deficiencies.

New Director of Health Service at Illinois.—Dr. Frederick C. Lendrum, assistant professor of medicine, University of Illinois College of Medicine, has been appointed director of the reorganized and expanded health service at the Professional Colleges of the University of Illinois. He succeeds Dr. Eduardo A. Hurtado, who resigned to return to private practice. The new director's staff will include Dr. Joseph H. Filip, recently released from service in the army, and Dr. Elsie H. Hartman. Functions of the health service include medical attention for on-the-job injuries of faculty and staff, examination of new students and employees, and examinations legally required in connection with sick benefits and the university's retirement system. Service facilities, now being greatly expanded after the part time arrangement in effect during the war, will be integrated with the teaching, research and treatment programs in the Professional Colleges, the hospitals and the clinics.

Speech and Hearing Program. — A new educational, research and clinical program in speech and hearing rehabilitation has been inaugurated by the University of Illinois College of Medicine. Herbert Koepp-Baker, Ph.D., recently released from the navy and formerly director of the Speech and Hearing Clinic at Pennsylvania State College, will serve as director and also as director of the new speech and rehabilitation division of the Illinois Eye and Ear Infirmary. In both the medical college and the infirmary the work will be supervised by Dr. Francis L. Lederer, head of the otolaryngology department and chief of that service in the eye and ear infirmary. Dr. Koepp-Baker's appointment, said to be the first of its kind in any major university, will immediately provide instruction and clinical experience in this highly specialized field for medical students, physicians and persons working in the closely correlated nonmedical branches of special education, psychology and social work. Both undergraduate and postgraduate instruction will be included in the educational program. On the postgraduate level ear, nose and throat specialists will be further trained in the correction of speech and hearing disabilities. In the nonmedical field professional speech therapists will be trained in the correction of defective hearing and speech. Clinical facilities at the university will be utilized in furthering an expanding research program.

Million Dollars for Cancer Research.—The Goldblatt Brothers Foundation has given $1,000,000 to establish the Nathan Goldblatt Memorial Hospital at the University of Chicago. As a clinical center the hospital will be devoted exclusively to the treatment of cancer and other neoplastic diseases. The hospital will be built on Ellis Avenue, just north of 59th Street, to connect with the surgical section of Billings Hospital of the university clinics. The Nathan Goldblatt

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memorial will be the only university hospital in the country with the entire staff engaged full time in cancer treatment and research. The hospital also will be the focus of the University of Chicago's Committee on Cancer and its associated Committee on Normal and Neoplastic Growth, which coordinate research on cancer in nine clinical and basic science departments. In addition to the present research facilities, significant additional resources will be added soon by the laboratories of the university's Institute of Radiobiology and Biophysics and its Institute of Nuclear Studies. Both institutes already have complete staffs. If conditions permit, construction of the hospital will begin next spring. Preliminary plans call for a six story structure, which probably will be increased to seven floors, with basement and sub-basement. The hospital will provide at least 50 beds in single and 2 bed rooms, together with the usual service features necessary for the care of patients. There will be two operating rooms, an outpatient clinic, offices and research laboratories for the staff, diagnostic laboratories, administrative quarters, reception rooms for patients and their relatives, and conference rooms for the staff and the scientists working under the Committee on Cancer and the Committee on Normal and Neoplastic Growth. The Goldblatt Brothers Foundation, donor of the hospital, is a charitable trust established in 1936 by members of the Goldblatt family and is entirely independent of the Goldblatt Brothers Department Stores. Nathan Goldblatt, in whose memory the gift is being made, died Nov. 3, 1944.

INDIANA

Physician's Memory Honored.—The citizens of Rockville and Park County are collecting a fund to create a memorial to the memory of the late Dr. Thomas J. Collings. The money will be given to the Union Hospital, Terre Haute, to be used in the purchasing of equipment or in any other manner decided by the hospital authorities.

Chester Bundy Heads Tuberculosis Control.—Dr. Chester M. Bundy, recently released from service with the U. S. Coast Guard, has been appointed director of the division of tuberculosis control, Indiana State Board of Health, Indianapolis. He succeeds Dr. Carl C. Kuehn, Indianapolis, who has been granted a leave to study public health at the University of Michigan.

LOUISIANA

New Professor of Pediatrics.—Dr. Myron E. Wegman, assistant professor of clinical pediatrics at Cornell University Medical College, New York, and director of training and research, bureau of child hygiene, New York City Department of Health, has been appointed professor of pediatrics and head of the department in the Louisiana State University School of Medicine, New Orleans. He succeeds the late Dr. Chester A. Stewart.

MARYLAND

The Dohme Lectures.—Dr. N. Hamilton Fairley, Wellcome professor of tropical medicine, University of London, will give the Dohme Lectures at the Johns Hopkins University School of Medicine, Baltimore, November 20-22. His subject will be "Chemotherapy of Malaria."

Meetings of Academy of Medicine.—On September 9 the Silver Spring Academy of Medicine opened its 1946-1947 program with a talk by Dr. Thomas N. Carey, Baltimore, on "Complications of Diabetes and Their Treatment." On October 7 the speakers were Capt. Rupert H. Draeger (MC), Lieut. Comdr. Eugene P. Cronkite (MC), "The Atom Bomb at Bikini," and Rear Admiral Thomas C. Anderson (MC), "The Naval Medical Service in the Pacific War." Other speakers will be:

Dr. Carlton N. Price, Syracuse, N. Y., November 4, Newer Concepts in Gynecology.
Dr. Brian B. Blades, St. Louis, December 2, Vagotomy in the Treatment of Peptic Ulcer.
Dr. Charles F. Geschickter, Baltimore, April 7, Lesions of the Breast.
Dr. Roscoe R. Spencer, Baltimore, May 5, Recent Research Work in Cancer.
Dr. Neil W. Swinton, Ann Arbor, Mich., January 6, Carcinoma of the Colon and Rectum.
Dr. Winfred Overholser, Boston, February 3, Recent Developments in Psychiatric Diagnosis and Treatment.
Dr. Edward J. Stieglitz, Bethesda, Md., March 3, The Significance of Geriatrics.

Health Department Activities.—Dr. Nels A. Nelson, assistant professor of venereal diseases at the Johns Hopkins University School of Hygiene and Public Health, Baltimore, and founder of the Massachusetts Neisserian Medical Society, has been appointed director of the bureau of venereal diseases in the Baltimore City Health Department. Dr. Henry F. Buettner, Baltimore, was recently named as acting director of the bureau of social hygiene in the city health department, succeeding Dr. Humphrey Warren Buckler. Dr. Buettner, formerly full time health officer of the Western Health District, was recently released from military service. Dr. Charlotte Silverman, Baltimore, formerly epidemiologist, Massachusetts State Department of Public Health, has joined the city health department as assistant director to Dr. Miriam E. Brailey, Baltimore, in the bureau of tuberculosis. Dr. Thomas B. Turner, professor of bacteriology, Johns Hopkins School of Hygiene and Public Health, and Dr. Allen F. Voshell, professor of orthopedic surgery, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, have been appointed consultants to the Baltimore department of health.

MINNESOTA

Personal.—Dr. Sigsbee R. Seljeskog, Minneapolis, has been appointed superintendent of the Elizabeth Kenny Institute, Minneapolis, succeeding Dr. Francis E. Harrington.

Studies of Brucellosis.—A research grant of $10,000 a year for three years has been made available to the Department of Medicine at the University of Minnesota Medical School, Minneapolis, by the U. S. Public Health Service for studies on brucellosis. This research project is under the direction of Dr. Wesley W. Spink, professor of medicine. Associated with him are Drs. Wendell H. Hall, Hartford, Conn., and Abraham I. Braude, Chicago. Investigations are under way in an attempt to clarify the pathogenesis of brucellosis in human beings and a clinical and experimental evaluation of therapeutic agents. In addition, epidemiologic studies are being extended.

Physiologic Chemistry Setup in Separate Unit.—Teaching and research in physiologic chemistry in the University of Minnesota Medical School, Minneapolis, was recently organized as a separate department with Dr. Wallace D. Armstrong, Minneapolis, as head. Work in this field was formerly administered as a division of the department of physiology. New appointments to the staff of the department include David Glick, Ph.D., Minneapolis, associate professor; Elizabeth Frame, Ph.D., and Saul L. Cohen, Ph.D., assistant professors. Other members of the department are Cyrus P. Barnum Jr., Ph.D., Karl Sollner, Ph.D., and Walter O. P. Lundberg, Ph.D., associate professors, and Charles I. Carr, Ph.D., instructor.

MISSISSIPPI

State Board Awards New Fellowships.—On September 25 the Mississippi State Medical Education Board announced the names of twelve new recipients of fellowships awarded under the state's new program of assisting students in the study of medicine:

Virginia Nashapter, Biloxi, accepted for first year at Tulane.
Glenn D. Baird, Water Valley, who begins second year of medicine, University of Mississippi School of Medicine, University.
Jerrel W. Benson, Oakland, accepted for third year at Johns Hopkins University School of Medicine, Baltimore.
Marion Virginia Green, Rolling Fork, who has finished first year of medicine at University of Mississippi.
Aubrey Russell Harris, Shannon, who has finished first year of medicine at University of Mississippi.
Martin Edward Hinman, Pascagoula, who has finished his premedical studies.
Alexander Wirt Hulett, Charleston, accepted for first year at Tulane.
James Louis McLain, Jackson, accepted for first year at Louisiana State University School of Medicine, New Orleans.
Mary Frances Mayfield, Laurel, accepted for first year at Tulane.
William Gaston Spence, Jackson, accepted for first year at Louisiana State University School of Medicine, New Orleans.
Virginia Stansel Stacy, Ruleville, accepted for first year at University of Mississippi School of Medicine.
George M. Wilson, Monticello, who begins fourth year, University of Tennessee College of Medicine, Memphis.

MISSOURI

Personal.—Dr. Gustave J. Dammin, recently released from military service, where he had been in charge of the laboratory division in the Office of the Surgeon General, has been appointed assistant professor of internal medicine and assistant professor of pathology, Washington University School of Medicine, St. Louis. He will serve as director of the Central Diagnostic Laboratories at Barnes Hospital, St. Louis, and will aid in the teaching of laboratory diagnosis in the department of medicine. The other half of his time will be devoted to research and teaching in the department of pathology.

NEBRASKA

Cornerstone Laid for Children's Hospital.—On September 28 the cornerstone of the Children's Memorial Hospital was laid with appropriate ceremonies by Henry Doorly, publisher of the Omaha *World Herald*. More than $520,000 has been raised for the complete project, but it will be necessary to raise another $100,000 during the coming winter, it was announced. The *World Herald* initiated the project with a gift of $100,000 for the construction of a children's hospital on

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ground leased from the University of Nebraska College of Medicine. The 100 bed hospital is to be independent of the university and not a state institution (THE JOURNAL, Jan. 8, 1944, p. 114). Dr. Charles W. Poynter, dean emeritus, University of Nebraska College of Medicine, Omaha, was given particular credit in the development of the project.

NEW JERSEY

Grants for Research.—White Laboratories, Inc., Newark, has announced that its program for extramural research for the fiscal year 1946-1947 includes new grants or renewal of previous grants for experimental and clinical studies at the Jefferson Medical College, University of Pennsylvania School of Dentistry, Boston University School of Medicine, the Margaret Hague Maternity Hospital, Jersey City, Newark Beth Israel Hospital and other medical institutions. In the current fiscal year a sum approximating $40,000 has been allocated for such studies, which include problems related to bacteriology, oral medicine and surgery, hematology, nutrition, endocrinology and veterinary medicine.

NEW YORK

Physician Honored.—A dinner was held September 1 in honor of Dr. Chalmer J. Longstreet to mark his retirement after nearly thirty years' service as health officer of Binghamton. Dr. Ralph M. Vincent, Binghamton, district state health officer, was toastmaster. Dr. Paul B. Brooks, Albany, former deputy state health commissioner and the first "sanitary supervisor" of the Binghamton district, was a guest speaker. Dr. Victor W. Bergstrom, Binghamton, president of the Broome County Medical Society, spoke and commissioner of public safety Behan presented Dr. Longstreet with a gold wrist watch.

Teaching Day.—A cancer teaching day will be held at the Nelson House, Poughkeepsie, November 6, under the auspices of the Dutchess County Medical Society, Dutchess County Tumor Clinic, Tumor Clinic Association of the State of New York, Medical Society of the State of New York and the division of cancer control of the New York State Department of Health. Among the speakers will be:

Dr. Chester O. Davison, Poughkeepsie, Five Year Cancer Survivals: The Experience of the Dutchess County Tumor Clinic.
Dr. Joseph H. Farrow, New York City, Diagnostic and Therapeutic Problems in Cancer: The Experience of the Dutchess County Tumor Clinic.
Dr. Martha E. Howe, New York City, The Public Demand for Prevention and Early Diagnosis: A Sound Response.
Dr. George N. Papanicolaou, New York City, Other Types of Cell Smear in Diagnosis of Cancer.
Dr. Maurice Fremont-Smith, Boston, The Vaginal Smear in the Early Diagnosis of Cancer of the Uterus.

New York City

Personal.—Dr. Harold M. Teel is to join the medical staff of the American University of Beirut in Lebanon, it was announced by the Near East College Association September 30. Dr. Teel, visiting professor at the university, will assist in developing the departments of obstetrics and gynecology of the new $2,500,000 Dodge Medical Center.——Dr. Otto R. Pozdena, Woodside, N. Y., has been appointed acting registrar and director of the bureau of records, New York City Department of Health.

Jewish Hospital Affiliates with College of Medicine.—A teaching affiliation has been established between the Jewish Hospital of Brooklyn and the Long Island College of Medicine, Brooklyn, to provide senior students with a wider opportunity for intensive study in fields of particular interest to them. Students will be offered the choice of elective clerkships in surgery, obstetrics, pediatrics and pathology. The facilities of the Jewish Hospital with its 660 beds will be utilized for the instruction of students who elect a one or two month clerkship. This development marks a step toward the reestablishment of a normal peacetime curriculum, since such elective studies were not possible under the accelerated wartime program. The affiliation will be mutually advantageous to both institutions in forwarding medical research. The college now renders service to the people of Brooklyn through eleven affiliated hospitals and institutions where teaching services are maintained.

Well Adult Clinic Opened.—The formal opening of the Well Adult (Cancer Prevention) Clinic of the Hospital for Joint Diseases took place October 8. Dr. Harold B. Davidson, who is in charge of the clinic and attending gynecologist at the hospital, stated in a release to the press that the objective of the clinic is purely preventive and its procedures are diagnostic. It seeks to discover early symptoms and signs suggestive of cancer. The clinic does not offer any treatment. Whatever illness or disease may be discovered as a result of the examination is brought to the attention of the patient or the patient's physician, and the patient is advised to seek early advice and treatment. This clinic differs from other clinics in several essential aspects. People do not come to the clinic for relief from symptoms or conditions that are known to them but to be examined and studied when they are apparently in good health. The physical examination is by physicians in the several specialties and by technicians who do the laboratory and x-ray work. The creation of the Well Adult (Cancer Prevention) Clinic is the first step toward the inauguration at the Hospital for Joint Diseases of a disease prevention program.

OREGON

Grants Awarded Medical School.—The University of Oregon Medical School, Portland, department of pharmacology has recently received two grants for research. The Sandoz Chemical Works, Inc., New York, has provided an unrestricted grant of $2,000 for general research and for completion of studies on oxytocic and antiepileptic drugs, to be directed by Dr. Norman A. David, professor of pharmacology and head of the department, assisted by Dr. Anton C. Kirchhof and Nilkanth M. Phatak, Ph.D. The second grant of $5,000 is to be used jointly by the departments of pharmacology and otolaryngology and has been awarded by the Research Study Club and the Pacific Coast Otolaryngological Society, Los Angeles, for the purpose of investigating the effect of hormonal substances on the growth and development of the middle ear and to study the general problem of otosclerosis. This study will be under the supervision of Dr. Guy L. Boyden, professor of otolaryngology and Dr. Ben Vidgoff, research associate in pharmacology.

PENNSYLVANIA

Clinical Pathologists Organize.—Dr. William P. Belk, Philadelphia, was elected president; Dr. Fred O. Zillessen, Easton, vice president, and Dr. Henry F. Hunt, Danville, secretary and treasurer of the Pennsylvania Association of Clinical Pathologists, which was organized at a meeting held in Philadelphia, October 9. Active membership is open to graduates of medicine who are or have been actively engaged in the practice or teaching of pathology, clinical pathology or one of its subdivisions. Residents in pathology are eligible for associate membership.

State Hospital Survey.—With the appointment of Dr. Hubley R. Owen, Philadelphia, as director, a survey of the state's hospital facilities was launched. The study, which will be carried on by the Pennsylvania Committee on Hospital Facilities, Organization and Standards, was authorized by the governor May 6 when he appointed a nine member committee to determine the state's hospital facilities and needs. Dr. Owen, formerly director of health of Philadelphia, has for the past three years been director of medical services of the Philadelphia Board of Public Education, from which position he has been granted a leave to undertake the study.

Philadelphia

Chevalier Jackson Honored.—On October 7 the Cavalcade of America on its broadcast over NBC used a script entitled "That They May Live" based on the life of Dr. Chevalier Jackson, inventor of the bronchoscope and esophagoscope.

Campaign Against Diabetes.—On September 16 the department of public health, with the assistance of its advisory committee on health education, the Philadelphia Metabolic Association and the Philadelphia Diabetic Society, inaugurated an intensive educational campaign against diabetes.

New Professor of Medicine.—Dr. Richard A. Kern, recently released from the Navy Medical Corps, has been appointed professor and head of the department of medicine at the Temple University School of Medicine, and medical director of the Temple University Hospital. Dr. Kern succeeds Dr. Charles L. Brown, who has become dean of the Hahnemann Medical College (THE JOURNAL, August 24, p. 1448).

Seminar on Industrial Medicine and Surgery.—On October 22 the American Mutual Liability Insurance Company conducted a seminar on industrial medicine and surgery at the Benjamin Franklin Hotel. Among the speakers in a session devoted to the rehabilitation and reemployment of the physically handicapped were Edward P. Chester, Washington, D. C.; Dr. Bernard L. Alpers, Philadelphia, and Dr. Andre W. Reggio, Washington, D. C. Other speakers on the program included:

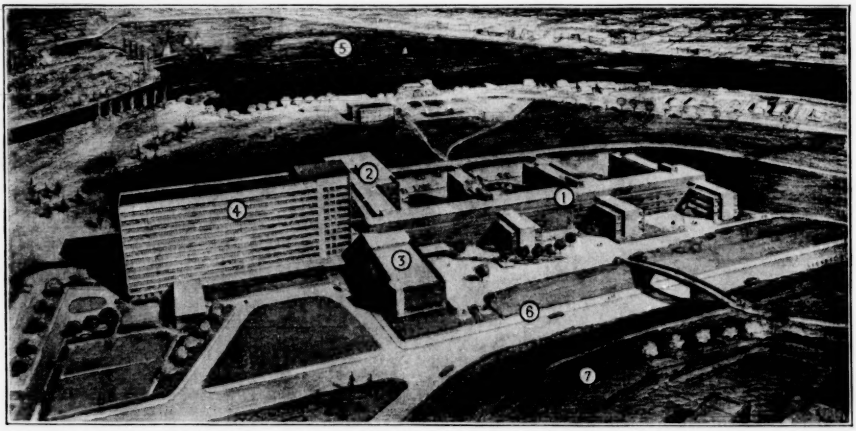
Dr. Henry C. Marble, Boston.
Dr. Connie M. Guion, New York.
Dr. Harrison L. McLaughlin, New York.
Dr. Allen F. Voshell, Baltimore.
Dr. Henry F. Ulrich, Baltimore.

WASHINGTON

New School of Medicine at Washington University.—The first class of fifty students has been admitted to the new School of Medicine at the University of Washington, Seattle. Instruction in the basic medical sciences for this class, as well as for the first class of dental students entering the new School of Dentistry at the same time, will be conducted in quarters allocated in the anatomy, chemistry, physiology and biology buildings on the University of Washington campus during the construction of new buildings for the division of health sciences. Departmental heads have been selected for all the basic medical science divisions, and the departments concerned with the immediate teaching program are well organized and adequately equipped to undertake excellent teaching and investigative activities. Appointments to date include the following personnel:

Anatomy
William F. Windle, Ph.D., professor and executive officer.
Dr. John L. Worcester, professor.
Dr. Howard B. Kellogg, associate professor.
Dr. Frederick L. Schever, lecturer.
Roland F. Becker, Ph.D., assistant professor.
William W. Chambers, Ph.D., assistant professor.
Dr. Robert J. Johnson, instructor.
Dr. Newton B. Everett, instructor.

Biochemistry
Earl R. Norris, Ph.D., professor and executive officer.
Carl A. Kuether, Ph.D., assistant professor.
James Mathies, M.S., associate.



Projected medical, dental and nursing school for division of health sciences, University of Washington, Seattle: (1) Basic Medical Sciences; (2) Dental School laboratories and clinics; (3) library and auditorium; (4) university teaching hospital; (5) yacht basin; (6) Pacific Avenue; (7) main University of Washington campus.

Physiology
Theodore C. Ruch, professor and executive officer.
Arthur W. Martin, Ph.D., associate professor.
Julia G. Skahen, Ph.D., assistant professor.
Loren D. Carlson, Ph.D., assistant professor.

Microbiology
Dr. Charles A. Evans, professor and executive officer.
Bernard S. Henry, Ph.D., professor.
Rachel E. Hoffstadt, D.Sc., professor.
Russell S. Weiser, Ph.D., associate professor.
Erling J. Ordal, Ph.D., associate professor.
Howard C. Douglas, Ph.D., assistant professor.
Esther Duchow, B.S., associate.

Pathology
Dr. Stuart W. Lippincott, professor and executive officer.
Lester D. Ellerbrook, Ph.D., assistant professor.
Dr. Walter A. Ricker, assistant professor.

Pharmacology
Dr. James M. Dille, professor and executive officer.
Dr. Daniel M. Green, associate professor.

Librarian
Alderson Fry, B.L.Sc.

Plans for the medical and dental school buildings have progressed to the stage of advanced working drawings. The Board of Health Sciences and the University of Washington regents have approved the plans for the new medical center, which will be located on the south end of the university campus between the Yacht Basin and Pacific Avenue. Basic medical sciences will be housed in a three story structure at the west end of the development. Library and auditorium facilities, laboratories and clinics for the school of dentistry are to be located immediately adjacent to the east, with the projected 400 bed University Teaching Hospital at the extreme east end. Maximum physical and functional integration has been considered in the development of the plans. The location of the medical center and the available land area are such that there will be ample room for expansion of facilities in the future. In 1945 the legislature of the state of Washington set aside an initial $3,750,000 with which the building program will be started as soon as plans are completed and contracts awarded. Additional funds will be requested from the next legislature for the completion of the project, which present estimates indicate will involve a total investment of from twelve to fifteen million dollars.

PUERTO RICO

Prevalence of Poliomyelitis.—Two hundred and twenty-one positive cases of poliomyelitis were registered in Puerto Rico from January 1 to October 17, indicating that the 1946 epidemic outbreak that struck the island has been the most severe since 1942, when 117 cases were accounted for. Final official figures were released this week by the Bureau of Epidemiology of the Department of Health. In 1943 there were 31 cases registered, and again in 1944 there were 14 cases. Last year the official records show 10 cases. The great increase in cases of poliomyelitis occurred in three of the principal cities on the island, namely Ponce with 35 cases, San Juan with 30 and Rio Piedras with 28, but the coefficient is more alarming in the small towns of Patillas and Guanica, in which 9 cases were registered for each town. Of 77 municipalities in Puerto Rico, the epidemic struck 47, leaving thirty towns and cities where cases were not reported.

Public Health Units Under Construction.—The government of Puerto Rico is now constructing nine public health units with an appropriation of $630,000 voted by the insular legislature in February 1945. These units will consist of a hospital and public health unit and will take care of indigent or charity cases in Las Marias, Orocovis, Adjuntas, Aguas Buenas, Rio Grande, Villalba, Dorado, Rincon and Isabela. New equipment will have to be purchased by the municipal governments in these towns.

Expansion of School of Tropical Medicine.—Dr. Pablo Morales Otero, director of the School of Tropical Medicine, has submitted to the Planning Board a program for the construction of the hygiene department of this institution and a request of funds to be allocated by the insular legislature to enlarge the existing hospital facilities in order to double its capacity from 50 to 100 beds. Plans are also under way for the construction of another building to group all the administrative offices of the school that are now in different buildings in San Juan. It is estimated that the legislature will appropriate not less than

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$400,000 during the month of February for this program. In addition to this, an act passed in 1945 allocated the sum of $240,000 for the new department of hygiene of this medical school, which will be a modern building to be added to the existing facilities of the institution. The services department building will cost $200,000 and the enlargement of the hospital an additional sum of at least $200,000, according to a statement by Dr. Morales Otero. The Civil Production Administration in Washington has approved all hospital construction facilities in Puerto Rico.

GENERAL

Examination in Surgery.—The American Board of Surgery, 225 South Fifteenth Street, Philadelphia 2, announces that its next examination in part I (written) will be held in March 1947, the exact day to be set later. All applications for this examination should be on file by December 1.

Seek Candidate for Fellowship.—The Schering Corporation of Bloomfield, N. J., has provided funds for the establishment of a fellowship in the department of pharmacology at the University of Tennessee in Memphis. Candidates are requested to submit their application and qualifications to John P. Quigley, Ph.D., at the University of Tennessee, Memphis, who will award the fellowship.

Prevention of Blindness.—The National Society for the Prevention of Blindness is holding its 1946 conference at the Hotel Pennsylvania, New York, November 25-27. Sessions will be devoted to the vision program in industry, developmental eye conditions in children, medical advances in restoring and conserving vision and meeting the need for professional personnel in sight conservation. There will be also a panel discussion on glaucoma.

British Visitors.—Dr. Jean Mackintosh, senior maternity and child welfare officer of Birmingham, England, arrived in New York on October 6 to visit maternal and child health services in New York City, Boston, Philadelphia, Baltimore, Toronto, Chicago and Minneapolis. Accompanying Dr. Mackintosh is Alderman Mrs. Nellie Hyde of the Birmingham City Council, who is concerned with the administration of maternal and child health services in the English cities.

Clair Turner Joins Infantile Paralysis Foundation.—Clair E. Turner, Dr.P.H., visiting professor of health education, University of California, and consultant to the Illinois Department of Public Health and the Kansas State Board of Health, has been appointed assistant to Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis. Dr. Turner will be engaged in strengthening relationships between the school systems and the various activities of the national foundation.

Muscle Charts Available.—Under the direction of a medical committee on the treatment and after-effects of poliomyelitis a muscle chart has been prepared. This chart is a standard type of record of muscle strengths especially desirable for use in the care of poliomyelitis patients and can be used advantageously by the physical therapy departments of hospitals and clinics. These charts are available free of charge and in quantity from the National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Society for Surgery of the Hand.—The American Society for Surgery of the Hand will meet in Chicago January 24-25 under the presidency of Dr. Sterling Bunnell, San Francisco. The society was formed in January 1946 as a direct outgrowth of the interest which developed in surgery of the hand during World War II. The original group consisted of thirty-five surgeons, all of whom are primarily interested in surgery of the hand or who have contributed to the development of this field of surgery. The organization is limited in membership, is invitational and has as its objective improvement and development of surgery of the hand. Dr. Sumner L. S. Koch, Chicago, is president-elect, Dr. Henry C. Marble, Boston, vice president, Dr. Joseph H. Boyes, Los Angeles, secretary-treasurer and Dr. Thomas W. Stevenson, Salt Lake City, historian.

Van Meter Prize.—The American Association for the Study of Goiter again offers the Van Meter Prize Award of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association, which will be held in Atlanta, April 3-5, provided essays of sufficient merit are presented in competition. The competing essays may cover either clinical or research investigations, should not exceed three thousand words in length, must be presented in English, and a typewritten, double spaced copy sent to the corresponding secretary, Dr. Thomas C. Davison, 207 Doctors Building, Atlanta 3, not later than January 1. A place will be reserved on the program of the annual meeting for presentation of the prize award essay by the author if it is possible for him to attend. The essay will be published in the annual proceedings of the association. This will not prevent its further publication, however, in any journal selected by the author.

Distribution of Streptomycin.—Distribution of a limited amount of streptomycin for clinical experiments in the treatment of tuberculosis will be handled by the American Trudeau Society, medical section of the National Tuberculosis Association, it was announced October 14. In response to a request by the Civilian Production Administration and a group of pharmaceutical manufacturers, Dr. H. McLeod Riggins, New York, president of the National Tuberculosis Association, has appointed a special committee headed by Dr. Horton C. Hinshaw, Mayo Clinic, Rochester, Minn., to correlate the carefully planned clinical research studies to be carried out in hospitals and sanatoriums designated by the executive committee of the American Trudeau Society. The object of these studies will be to determine the possibilities and limitations of streptomycin in the treatment of tuberculosis and to learn if the drug is sufficiently effective to justify increased commercial production. Dr. Riggins explained. Pointing out the high cost and limited quantity of the drug, Dr. Riggins said it would be impossible at this time to supply many well qualified investigators or to assign it for individual cases, regardless of the degree of urgency. Dr. Hinshaw, who has conducted studies in streptomycin for the past twenty months, warned that it has not yet been sufficiently tested to warrant large scale production and use in the treatment of tuberculosis. He emphasized that the drug cannot be regarded as a substitute for present methods of sanatorium and surgical therapy.

CANADA

Meeting of Medical Students and Interns.—The tenth annual national conference of the Canadian Association of Medical Students and Internes will be held at the medical building of McGill University, Montreal, November 14-17. Nine Canadian medical schools will send two delegates each, and an unknown number of intern groups in Canadian hospitals will be represented. Highlights of the conference will be a complete constitutional revision, the consideration of an "affiliation" with the Canadian Medical Association, the adoption of a medical film plan in conjunction with the National Film Board, and a discussion of intern remuneration. This conference culminates a year of reorganization following the disruption brought about by the accelerated courses. During this year a six member executive committee has carried through an agreement with the Canadian Medical Association for an "affiliation" of Canadian Medical Association and the Canadian Association of Medical Students and Interns, if the latter's delegates so desired at the tenth conference. The Canadian Medical Association's decision was effected at its annual reunion at Banff in June.

Marriages

HARRY JAMES KEYS, Brooklyn, to Mrs. Constancia Wellington Johnson of Jacksonville Beach, Fla., recently.

ROBERT BOYD LINDSAY, Winston-Salem, N. C., to Miss Elizabeth Grey Peden of Canton in Asheville, July 6.

RALPH BERTRAM WILLIAMS JR., Wilmington, N. C., to Miss Ellen Shannon of Springfield, Tenn., July 6.

JOHN JEROME COYLE, Chandler, Okla., to DR. ELIZABETH IRBY TUTWILER of Greensboro, Ala., August 14

GEORGE TURNER HOWARD JR., Knoxville, Tenn., to Miss Sue Scott Crizer at Appalachia, Va., July 20.

JOHN WILLIAM RIDENOUR to Miss Dorothy Louise Mazza, both of Washington, D. C., July 27.

FRANCIS M. HAUCH, Appleton, Wis., to Miss Lorraine Calhoun of Waukegan, Ill., July 31.

THOMAS HARDING WOLEVER JR., Fulton, N. Y., to Miss Helen Romano of Syracuse recently.

JAMES H. KELLEHER, Montpelier, Vt., to Miss M. Eileen Duffy of New York, July 22.

FRANCIS H. STERN, Philadelphia, to Miss Helen Gordon of Harrisburg, Pa., June 9.

SAMUEL T. KILLIAN to Miss Renee Engel, both of Syracuse, N. Y., June 15.

Deaths

Leroy Upson Gardner ✦ Saranac Lake, N. Y.; Yale University School of Medicine, New Haven, 1914; born in New Britain, Conn., Dec. 9, 1888; following a period of graduate study at the Boston City Hospital and the Harvard Medical School, Boston, joined the faculty at Harvard as an instructor in pathology, serving in 1916-1917; returned to Yale as assistant professor of pathology, 1917-1918; an Associate Fellow of the American Medical Association, in which he had been a charter member of the Council on Industrial Health; fellow of the American Association for the Advancement of Science; member of the American Association of Pathologists and Bacteriologists and the American Society for Experimental Pathology; member of the board of directors of the National Tuberculosis Association; member of the corresponding committee on silicosis, International Labor Office, in 1930; a first lieutenant in the medical corps of the U. S. Army in 1917; trustee, village of Saranac Lake, 1932-1933, member of the water board, 1929-1930 and member of the village planning commission; for many years visiting lecturer in medicine at the University of Rochester School of Medicine; consultant pathologist at the U. S. Veterans Bureau from 1926 to 1932; formerly pathologist and for many years director of the Trudeau Foundation; since 1927 director of the Saranac Laboratory for the Study of Tuberculosis; trustee, Trudeau Sanatorium; in 1935 was awarded the Trudeau Medal of the National Tuberculosis Association for his work on the pathology of tuberculosis, notably that dealing with the relation between tuberculosis and silicosis; in 1940, at the annual meeting of the American Association of Industrial Physicians and Surgeons, was presented with the annual William S. Knudsen award for outstanding achievement in industrial medicine because of advances in the knowledge of silicosis resulting from research directed by him; in 1940 delivered the seventh annual John W. Bell lecture; co-author of "Tuberculosis—Bacteriology, Pathology and Laboratory Diagnosis" with S. A. Petroff, 1927; received the honorary degree of master of science from Yale in 1940; died October 24, aged 57.

Robert K. Lambert ✦ New York; Columbia University College of Physicians and Surgeons, New York, 1922; born in New York Nov. 5, 1898; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons and the New York Academy of Medicine; clinical professor of ophthalmology at his alma mater; served during World War I and as a major in the medical corps, Army of the United States, during World War II; chief of the eye service at the Mount Sinai Hospital, where he served an internship and residency; served as attending surgeon, in charge of the ophthalmologic service of Montefiore Hospital for Chronic Diseases and later as consulting ophthalmic surgeon; died in the Doctors Hospital October 3, aged 47, of fibrosarcoma and pulmonary embolism.

James Trent Christison, St. Paul; Long Island College Hospital, Brooklyn, 1890; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; born in Southampton, England, Oct. 2, 1865; a member of the American Medical Association, serving as a member of its House of Delegates in 1918 and from 1934 to 1938; past president of the Minnesota State Medical Association and for many years a member of the editing and publishing committee; past president of the Ramsey County Medical Society; clinical professor emeritus of pediatrics at the University of Minnesota Medical School and formerly associate professor of pediatrics at the University of Minnesota Graduate School; served on the staffs of the Miller and Children's hospitals; died at Deer River, Minn., September 14, aged 81, of coronary occlusion.

Benjamin Harrison Swint ✦ Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1911; born in Pickens, W. Va., Aug. 14, 1888; fellow of the American College of Surgeons; member of the West Virginia Department of Health; past president of the Kanawha Medical Society; served overseas during World War I; at one time a member of the West Virginia National Guard; affiliated with St. Francis Hospital; in 1942 received from Pope Pius XII the award of "Knight of the Holy Sepulchre" for distinguished service to the church; the award of Silver Bear was presented to him by the National Council of Boy Scouts of America for "distinguished service to boyhood"; died September 7, aged 58, of acute pulmonary edema.

Torrence Calvin Moyer ✦ Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1914; specialist certified by the American Board of Internal Medicine; fellow of the American College of Chest Physicians and the American College of Physicians; member of the American Trudeau Society and the American Heart Association; served as president of the Lancaster County Tuberculosis Society; served during World War I; member of the staffs of the Bryan Memorial Hospital and the Lincoln General Hospital, where he died September 8, aged 58, of coronary heart disease.

Charles Edward Bradley, Colorado Springs, Colo.; University Medical College of Kansas City, 1895; died in St. Francis Hospital September 10, aged 81, of gastric hemorrhage.

James Murray Ellzey Jr., Philadelphia; Medical College of Virginia, Richmond, 1931; member of the American Medical Association; associate surgeon, Chestnut Hill Hospital; died September 8, aged 43, of coronary occlusion.

Hal S. Frazer, St. Louis; St. Louis College of Physicians and Surgeons, 1898; died in the Alexian Brothers Hospital September 8, aged 68, of coronary occlusion and carcinoma of the liver.

James Stewart Gaumer ✦ Fairfield, Iowa; Rush Medical College, Chicago, 1900; fellow of the American College of Physicians; veteran of the Spanish-American War; on the staff of the Jefferson County Hospital; died September 10, aged 74, of coronary occlusion.

Philip Grover Hirtenstein, New York; University and Bellevue Hospital Medical College, New York, 1903; member of the American Medical Association; died August 9, aged 72, of heart disease.

Harris Ayres Houghton, Ridgewood, N. J.; Syracuse University College of Medicine, 1901; captain in the medical corps of the U. S. Army during World War I; formerly affiliated with the Flushing (N. Y.) Hospital, Manhattan Eye, Ear, Nose and Throat Hospital, Park East and Park West hospitals, all in New York, Physicians Hospital, Plattsburg and the Kingston (N. Y.) Hospital; died in the Veterans Administration Facility in Lyons, N. J., September 2, aged 72, of ruptured abdominal aortic aneurysm.

Egbert Railey Hull, Camden Point, Mo.; University Medical College of Kansas City, 1907; member of the American Medical Association; also a druggist; died in St. Joseph September 3, aged 81, of peritonitis.

Leo Jacoby, New York; Columbia University College of Physicians and Surgeons, New York, 1900; member of the American Medical Association; affiliated with the Harlem Hospital Clinic; died September 1, aged 69, of cerebral hemorrhage.

Jerome Augustine McSweeney, New York; Fordham University School of Medicine, New York, 1911; died in Bayshore Village, N. Y., June 22, aged 57, of pulmonary tuberculosis.

Daniel Flick Remer ✦ Mount Holly, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1910; affiliated with the Burlington County Hospital; medical examiner for the Pennsylvania Railroad; died September 6, aged 66, of coronary occlusion.

David O. Roberts, Hanover, Ohio; Eclectic Medical Institute, Cincinnati, 1880; died September 10, aged 89, of congestive heart failure.

Tazwell David Rowland, Shawnee, Okla.; Memphis (Tenn.) Hospital Medical College, 1903; member of the American Medical Association; major, medical reserve corps, U. S. Army, not on active duty; on the staff of the Shawnee City Hospital; died September 3, aged 75, of uremia.

Edmund O. Sawyer, Los Angeles; Starling Medical College, Columbus, 1880; served as county health officer; died July 15, aged 94.

Joseph Scheurich, Philo, Ill.; Barnes Medical College, St. Louis, 1898; on the visiting staff of the Mercy Hospital and the Burnham City Hospital in Champaign, where he died September 7, aged 73, of coronary heart disease.

Gust Sjolander, Midland, Mich.; Saginaw Valley Medical College, Saginaw, 1903; Chicago College of Medicine and Surgery, 1912; member of the American Medical Association; died September 6, aged 74, of coronary occlusion.

Helen E. Weithaase, Vineland, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1908; died August 6, aged 72, of carcinoma of the stomach and cerebral thrombosis.

Guillermo Wills, New York; University of Pennsylvania Department of Medicine, Philadelphia, 1908; died July 2, aged 64.

George T. Zerbe, Bon Aqua, Tenn. (licensed in Tennessee in 1910); died July 30, aged 80, of heart block.

William Simpson Zimmerman ✦ Spartanburg, S. C.; Medical College of the State of South Carolina, Charleston, 1909; died July 18, aged 62.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 12, 1946.

The National Health Service Bill

Moving the second reading of the National Health Service bill in the House of Lords, the lord chancellor said that it represented the greatest task that ever had been placed on the shoulders of one man. The minister of health was in the position of commander-in-chief planning a campaign against a very dangerous enemy, the forces of disease and ill health. But he was prevented from becoming what might be termed "a pocket Hitler." Every regulation he made must be approved by Parliament. Our hospital service had been developed in a haphazard way. The distribution of hospital services was quite irregular; there was no system at all and overlapping occurred. Many hospitals were too small to justify independence. We could not rely any longer on charity for hospital expenses. The scheme did not involve bureaucratic control. The doctors would have full freedom and scope for their professional skill.

In the debate the bill was criticized by two leading physicians. Lord Moran, president of the Royal College of Physicians, said that with regard to the control of hospitals the medical profession would rather be under the minister than under the local authorities. The minister should put into the service a small number of experienced men who were leaders of the profession. The leisure for research which able men had hitherto enjoyed should be preserved. Committees, which were the drowsy syrup of the democratic state, ate up the spare time of specialists. There was disquiet among general practitioners as to their future. They feared that under a whole time service they would lose their liberty. He had no certain answer to the question whether a whole time service was necessarily bad for the profession and for the public.

Lord Horder said that the anxiety in the profession today lay in the realization of the tremendous centralization of power vested in the minister. He had spoken many times about his "consultation" with the profession, but that was a euphemism for the most blatant form of "ipse dixitism." He hoped that the government might be persuaded to accept amendments which might preserve the voluntary hospital system and safeguard the freedom of the individual, thus deferring indefinitely the nationalization of medicine. The bill condemned every one to a dead level of mediocrity. There was no escape except through the medium of a black market in doctors, and his mind boggled at the thought of its probable immensity. They could not be blamed for thinking of it sympathetically if they believed it was the only salvation for the patient. It was the doctors' duty to do their utmost to make this experiment succeed in the best interest of the public. But the overriding duty of the doctor was not to the state but to the patient. The bill was read a second time without a division.

Sir Walter Langdon-Brown

The death at the age of 76 of Sir Walter Langdon-Brown has removed a great teacher and brilliant writer. After a distinguished career at Cambridge he completed his medical education at St. Bartholomew's Hospital and was appointed to the staff. The application to medicine of the rapid advances in physiology made at the close of the nineteenth and in the present century dominated his teaching, and no one, either by the spoken or by the written word, did so much to reveal his importance to the profession. From the first he was deeply interested in modern endocrinology, whose birth in this country took place in 1891 on the discovery by G. R. Murray in that year of the internal secretion of the thyroid gland. Langdon-Brown was one of the first to draw attention to the similarity of the effects produced by lesions of the anterior pituitary and of the adrenal cortex some years before Cushing described pituitary basophilism. A master of the brilliant phrase, he called the pituitary gland "the leader of the endocrine orchestra," and later when the importance of the hypothalamus in relation to the pituitary became clearer he described the hypothalamus as "holding the still more important rank of conductor of that orchestra." The importance of his teaching on the applications of endocrinology was recognized by his election to the presidency of the recently constituted Section of Endocrinology of the Royal Society of Medicine, although his illness prevented him from ever occupying the chair and his presidential address had to be read for him. His subject was "The Development of Endocrinology" (THE JOURNAL, August 10, p. 1238) and his treatment of it did not show any lack of his old vigor.

He was a prolific writer. His most successful book, "Physiological Principles in Treatment," first published in 1908, went through eight editions. Other works included "The Sympathetic Nervous System in Disease" (1920) and "The Endocrines in General Medicine" (1927). He was joint editor of "The Practitioner's Encyclopedia of Medical Treatment." In these books and in lectures and articles contributed to the medical press he taught medicine as applied physiology in a most luminous manner, drawing examples widely from history and literature; for his vision was not limited to the materialism of medicine but included things of the mind. In short, his outlook was philosophical, as can be seen in the titles of some of his addresses: "Thus We Are Men," "The Pursuit of Shadows," "We Have Reason to Think," "Some Gods and Their Makers," "New Pains for Old." In his later years he was much interested in medical psychology and was attracted to the school of Adler. As president of the Medical Society of Individual Psychology he contributed to several of its publications.

PARIS

(From Our Regular Correspondent)

Oct. 12, 1946

New Antituberculosis Program

The former antituberculosis campaign caused the death rate to go down by 40 per cent and succeeded in preventing a notable increase of the morbidity through tuberculosis after the war, but France still has about 70,000 deaths due to this illness. The object of the new law of the 31st of October 1945 is to coordinate the working of the public and private institutions with specialized doctors and officials. The basis is the "département" (district) with its dispensaries provided with district nurses ("assistantes sociales") for the detection of unknown cases by means of systematic roentgen ray and skin testing in series. Dispensaries also practice artificial pneumothorax. An antituberculosis committee for local mutual aid and health education insures aid to the tuberculous and their families and organizes health propaganda. Each district hospital will be provided for with a "départemental" center of phthisiology with the corresponding beds. The head phthisiologist is assisted by a district nurse, who coordinates the activities of all the district nurses of the "département." The center, a group organized for diagnosis, treatment, sorting and admission to hospitals, is also the liaison organization between dispensaries and the treatment establishments. The latter are (1) "aeriums," prophylaxis centers for exposed or predisposed children; (2) preventoriums for patients with a recent primary infection or suffering from nodular erythema or from serofibrinous pleurisy (all these patients must be free from fever and their sputums must be negative); (3) sanatoriums for treatment of curable patients; (4) sanatoriums for after-treatment and readaptation. In every sanitary district (there are fifteen for the whole country) a regional consulting doctor coordinates the antituberculosis struggle in the region. In Paris a central hospitalizing office, organ-

ized by the National Committee Against Tuberculosis, keeps an up to date complete documentation and advises the "départemental" centers of the available beds. As every tuberculous person declared as such is immediately sent to a sanatorium (without waiting for the decision regarding the responsibility of the costs), it is expected to diminish the danger of contagion. Then a corps of phthisiologists selected through a competitive examination has been formed. An important part is to be played by the law on the insurance against long diseases, which at first covers two years and may be extended to five years. This law provides the insured and their families with the covering of their expenses incurred through illness. During the time of his stay in a hospital or in a sanatorium, the insured is entitled to an allocation of half his salary or of two thirds if he has dependants. During the eventual period of readaptation and professional reclassifying (which is now realizable thanks to financial arrangements and which is even declared as compulsory) the insured will have the benefit of the payment of the medical and pharmaceutical expenses and a complement of wage allocation. After being reclassified and having resumed work, he will always benefit by the paying of his medical and pharmaceutical expenses. The law covering the new organization of the campaign against tuberculosis provides similar protection for patients not belonging to the social insurance. By means of those dispositions, which have been in force since the 1st of January 1946 and through other organizations, if is expected that morbidity and mortality from tuberculosis will be diminished.

Miscellaneous

On the invitation of an American relief organization for France, the minister for population has gone to America; he will visit New York, Washington, San Francisco, Los Angeles, Chicago, Quebec, Toronto, Ottawa and Montreal and will return via Boston and New York.

On the invitation of the Iranian government, Professor Pasteur-Valery-Radot, Dr. Legroux and Professor Lacassagne have gone to Teheran to reorganize the Iranian Pasteur Institute. Dr. Balthazar has been appointed director, and the scientific council is composed of Messrs. Trefouel, Pasteur-Valery-Radot, Lacassagne, Legroux and Georges Blanc.

COPENHAGEN

(From a Special Correspondent)

Oct. 5, 1946.

Medical Practice in the Melting Pot

Last June Dr. C. Clemmesen, chairman of the Danish Medical Association, presided over a special meeting at which between 400 and 500 doctors took part in a discussion of the future of medicine in Denmark. Among those present were Dr. J. Frandsen, chief of the Danish Public Health Service, and Mr. L. P. Borberg representing the medical insurance societies. It will be recalled that some 85 per cent of the inhabitants of Denmark receive their medical care through the agency of insurance societies which started as private undertakings and which now, owing to state subsidies, have become more or less public bodies. By defending their own interests at the expense of the doctors, these societies have incurred an unpopularity in certain medical quarters amounting to definite antagonism. The special meeting enabled many doctors to ventilate their grievances, gave Dr. Frandsen an opportunity to defend his plans for converting medical practitioners into apostles of preventive medicine and enabled Mr. Borberg to take up the cudgels on behalf of the much abused insurance societies.

THE CASE AGAINST THE SICKNESS INSURANCE SOCIETIES

From the outset these societies have been haunted by the phantom of bankruptcy with the result that they have striven to keep expenses down at the cost of both patient and doctor. Doctors are remunerated according to two different systems, the first depending on an annual capitation fee of, at any rate in one district, 18 kroner, for which he treats not only the insured person but also his wife and children. According to the second system he is paid a small sum for each consultation and visit. How small the sum is has been calculated by a doctor who kept careful records of all his cases and has found that the 17,000 kroner paid him by the insurance society would have been 29,000 kroner had his insured patients been private patients. According to another calculation, only one third of the total cost of medical aid is borne by the insurance societies, the remaining two thirds coming out of the pockets of the state and local authorities. The insurance societies are also accused of exploiting the public hospitals, in which their members are treated mainly at the cost of the community.

FREE SICKNESS BENEFITS

Every Dane, whatever his income, may be admitted to a public hospital, which, if it is situated outside the city of Copenhagen, will charge him only 4 to 7 kroner a day and which, if it is in Copenhagen, will charge him the ridiculously small sum of 1.20 kroner, although the actual cost to the hospital will be between 15 and 20 kroner a day. The insurance societies bear only a small fraction of the cost of hospital treatment of their members, who, if they are treated according to the first scheme by a doctor for an annual capitation fee, cease to trouble him as soon as he has sent them to a hospital; hence the tendency on the part of the insurance societies and some doctors to overload the hospitals with their patients. There are many other ways in which medical aid can be obtained free of charge. Any one who likes to do so can call in a public health nurse free of charge and obtain advice at a public welfare maternity institution. Any one under the age of 18 can be vaccinated against diphtheria, any one can get advice at a tuberculosis station, and any woman who wants to can obtain the advice of a doctor and midwife free of charge throughout her pregnancy. Not only the fever hospitals are open to all free of charge, but the subjects of venereal disease can obtain free treatment if they so desire.

CURATIVE OR PREVENTIVE MEDICINE

Dr. Frandsen, in his capacity of senior medical officer to the Danish Public Health Service, has had much to do with the inspiration and drafting of recent public health legislation in Denmark. He is also a believer in the general medical practitioner as the hub about which all preventive as well as curative medicine should revolve. Hence his efforts to make the general medical practitioner think in terms of health rather than disease. According to a new law enacted last summer, every child in Denmark up to the age of 7 is entitled to nine medical examinations free of charge, the first three examinations being allotted to the first year of life, and one examination for every one of the following six years. This task might well have been allotted to specialists in children's diseases, and a new special service might have been organized for this purpose without reference to the general practitioner. But Dr. Frandsen held that such sidetracking of the general practitioner would be unfortunate. Hence his inclusion in the working of the new scheme. But the reaction of the more conservative element in the ranks of the general medical practitioners was exemplified by one of them, who said in public "It is quite terrible with these children from 0 to 7 years. Are we to have them also? How on earth are we to cope with it all?" It is, however, probable that this attitude is exceptional and that most general practitioners, the younger ones in particular, are willing to shoulder new responsibilities reflecting a more liberal conception of the duties of a doctor. It is not altogether irrelevant to the matter that the Danish government is providing several million kroner for the new duties it is asking the medical profession to undertake.

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COOPERATIVE HEALTH FEDERATION

To the Editor:—The board of directors of the newly organized Cooperative Health Federation of America, whose inauguration was featured by an editorial in THE JOURNAL, August 31, wish to set before your readers a statement of the principles and aims of the federation. We trust that you will publish this letter in full, because we feel that your editorial did not accurately report our position.

The first principle on which our federation is based is that patients have the right voluntarily to organize for the purpose of securing medical attention for themselves and their families. Free association for any purpose not inconsistent with the public interest lies at the root of our liberties. Does the American Medical Association hold that the organization of consumers to obtain physicians' services is "inconsistent with the public interest"? We cannot believe that it does. Yet we find its constituent societies in a number of states sponsoring and supporting legislation that prohibits patients from organizing plans for medical care without the express permission of the doctors. In many states in which such laws have been enacted, medical societies have set up prepayment plans; since the societies have the power to prevent the formation of other plans, their plans are clearly monopolies. A major aim of the federation is to rectify the fundamental injustice of these laws. We have no wish to debar the doctors' plans; we wish merely to give consumers equal opportunity and thus restore in every state the liberty anciently permitted under the common law.

The second principle of our federation is that consumer organized medical care plans are an instrument for bringing the art and science of medicine more effectively to more people.

When consumers organize to provide themselves with services or goods they do so to obtain more and better services and goods. In the case of medical care, the consumer's interest must first be in quality. The members of this federation understand that comprehensive medical services of high quality require well trained physicians and competent auxiliary personnel adequate facilities and equipment, and the development of a personal relationship between a patient and his doctor. To achieve these conditions requires rational organization of the doctors and allied professional personnel. It further demands close cooperation and thorough organization between those who render and those who receive the services. Group practice, developed by physicians from the needs of their science, is, in our view, the answer for professional collaboration. It has, in fact, been successfully utilized by the majority of our members. In combination with prepayment and consumer organization, group practice has demonstrated its ability to deliver a high quality of care. There is no such thing as consumer control of medical practice. In plans sponsored by consumers, doctors are free agents, free to accept or reject the proffered compensation, free to render the kind of medical service their knowledge dictates and the profession's code of ethics demands.

In support of our statement that consumer organized plans wish to improve the effectiveness of medical care, we point to our member plans in comparison with the inadequacy of medical society sponsored plans. Only a fraction of the medical society plans have advanced beyond a minimum coverage of surgical operations. Their contracts are laden with restrictions and exclusions. The consumer sponsored groups, in contrast, all show broader scopes of service and most of them place particular emphasis on personal preventive medicine.

Our member plans provide for medical service in contradistinction to cash indemnities. They seek to develop medical centers rather than sell insurance policies. Their intent is to broaden the scope and enhance the quality of medical care at the same time as they give financial protection.

For these reasons the federation stands without equivocation for consumer organized medical care plans. It does not seek any exclusive rights for consumers but believes that the right of free association and competition will bring about progressive improvement in the distribution and quality of medical care.

Our third principle is that the public has a responsibility for assuring the availability of health and medical services for all the people without economic or other barriers.

From our work in organizing and conducting local prepayment plans we are acutely aware that there are all too many American people who cannot pay for an adequate standard of modern medical care. To provide them with such care as a matter of charity is, we conceive, consistent neither with good medicine nor with fundamental social justice. We therefore support the view that public funds should be used to provide for medical care in such a way that every one may receive equal service on an equal basis.

Because medical care is essentially a personal service and by its very nature requires an understanding of the community as well as of the individual patient, we stand for decentralization of any program of public health or health insurance. The disparity of means between states makes participation by the national government imperative, but we believe that a maximum of local administration and control are essential.

In conformity with our first two principles, we also stand for freedom for every person in the selection of his or her sources of medical care, for consumer representatives on boards and committees, and for the continued encouragement of voluntary associations of consumers. Application of these principles, we believe, effectively protects the American people against mechanical and impersonal medical services.

The Cooperative Health Federation of America believes that medical service is as proper an object for organization by patients as by doctors. We do not claim perfection for our plans, nor do we think that change in the method of paying for medical care will automatically and of itself alone immediately usher in the millennium. We have had wide practical experience in the organization of health plans and do not look for miracles. But we are intent on improving the distribution of the medical arts and sciences, and we believe that we have found one valid answer to the problem in voluntary consumer organization.

COOPERATIVE HEALTH FEDERATION OF AMERICA.
GEORGE W. JACOBSON, Secretary-Treasurer, St. Paul.

Medical Motion Pictures

FILM REVIEW

Studies in Human Fertility. Black and white, sound, 1,500 feet, showing time forty-two minutes. Produced in 1940. Professional Advisers H. L. Daiell, M.D., and Eric M. Matsner, M.D. Procurable from Ortho Pharmaceutical Corporation, Linden, N. J.

This motion picture presents in an authoritative, interesting and dignified manner a summary of the basis and application of methods for the control of conception. The physiology of reproduction is first presented by means of a lecture illustrated by photomicrographs and animated drawings. The medical indications for the control of conception are outlined briefly, and the various technics of contraception are discussed and illustrated. The undesirable and dangerous methods are contrasted with the accepted technics, and this is followed by a short discussion of the pharmacology of contraceptive jellies and creams. One suggestion relates to the part dealing with the temperature at which semen should be studied. Preservation is one thing and observation is another. The film leaves unanswered the question whether the refrigerated spermatozoa regain their motility if warmed to room or to body temperature. The sequence of the material is logical. The photography and general treatment are excellent. The entire presentation is well integrated and is suitable for the instruction of medical students, practicing physicians and nurses.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Validity of Restrictions on Advertising.—The plaintiff, a practicing dentist in the District of Columbia, filed suit for a declaratory judgment to determine his right to persist in certain practices contrary to regulations promulgated by the Board of Dental Examiners. From an adverse judgment, plaintiff appealed to the United States Court of Appeals for the District of Columbia.

The dental practice act of the District provides for the creation of a Board of Dental Examiners and authorizes it to revoke or suspend the license of any dentist found to be guilty of unprofessional conduct, which among other things is declared to be: "Advertising by any medium other than . . . a modest professional card or the display of a modest window or street sign at the licensee's office, which professional card or window or street sign shall display only the name, address, profession, office hours, telephone connections and, if his practice is so limited, his specialty: . . ." The board was then granted authority to make such rules and regulations as it deemed necessary to effectuate the purposes of the act, and specifically to designate the size of cards and signs. Accordingly, the board declared that a licensee be permitted to display only two modest signs, with information thereon confined to that allowed by the act. Window signs and signs flush with a building may not exceed 288 square inches in area with lettering limited to 3 inches in height. Signs which protrude from a building may not exceed 144 square inches in area, with lettering similarly limited to 3 inches in height.

The plaintiff, said the court, has not been accustomed to advertising in an unobtrusive manner. He estimates that more than one half of his fifty to sixty patients a day are attracted by his newspaper advertisements and building signs. He has spent from $2,500 to $6,000 a year in newspaper advertising. He has placed four signs flush with his office building, 4 by 6 feet in size, on which there is lettering 4, 5 and 8 inches in height; and a large metal sign hung at an angle. Thus there are at least twice the number of signs permitted by the regulations and each of the signs flush with the building is twelve times the maximum size allowed. The plaintiff also displays laboratory dental work in a small show case at the entrance of his office building.

The plaintiff first urges that he is deprived of the due process of law assured him by the fifth amendment in so far as the act forbids the advertising of prices, the advertising of free dental examinations, the display of teeth or bridgework, and truthful advertising in general. The Court of Appeals said that other courts have so often sustained identical legislative provisions that it is somewhat surprising that the appellant apparently seriously represents an argument in this case. The terms of the act, said the court, are clear. The words "large," "professional services," "indirectly" and "advertising" have all been considered sufficiently definite and precise as used in such legislation. The limitation on newspaper advertising is a reasonable regulation under the terms of the act.

The plaintiff next urges that the board has no authority to designate the number of signs that he may employ, there being no limitation in the act as to number but only as to size. The board insists that "size" as used in the act means "aggregate size" else the congressional provision is ineffectual. We agree, said the court, that the regulation dealing with size is a nullity if it permits the licensee to accomplish through multiplicious production the effect denied to a single display.

The plaintiff's final attack is against the regulation of the board which limits the size of the advertising signs to 144 and 288 square inches, with maximum lettering of 3 inches in height. He complains that the regulation makes no distinctions on the basis of the size or locality of the building, the floor on which the office is located or the nature of the obstructions to the view thereof; and that the limitation is arbitrary, with no elasticity or discretion provided. The regulations of the board, said the court, are valid so long as they are not unreasonable or arbitrary. If any doubt exists as to their invalidity, they must be upheld. The precise question is whether the limitation of a dentist's office signs to 144 and 288 square inches, with maximum lettering of 3 inches in height, is clearly an unreasonable restriction under the terms of the act. Bearing in mind that the purpose of the dental practice act is to maintain high professional standards and to eliminate "bait advertising" as a means of competition, we cannot but deem the dimensional delimitations on dental displays to be reasonable, the court concluded. The law demands simplicity and reserve; the regulations of the board merely insure that these will be maintained. The board, a body of competent practicing dentists, acting under congressional authority, has determined the rules for advertising within its profession. The district court has held the regulations promulgated under that authority to be reasonable and valid. We see no sound basis on which these determinations may be disturbed. Accordingly the judgment for the defendant was affirmed.—*Johnston v. Board of Dental Examiners, D. C., 134 F. (2d) 9 (1943).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Board in Specialties were published in THE JOURNAL, October 26, page 474.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, Jan. 21-23. Secretary, State Board of Medical Examiners, B. F. Austin, M.D., 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, Nov. 7-8. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, Nov. 7. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CONNECTICUT: * *Examination.* Hartford, Nov. 12-13. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, Nov. 12-13. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, Jan. 14-16. *Endorsement.* Dover, Jan. 21. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * *Examination.* Jacksonville, Nov. 26-27. Sec., Dr. Harold D. Van Schaick, 2736 S.W. 7th Ave., Miami 36.

HAWAII: *Examination.* Honolulu, Jan. 13-16. Secretary, Board of Medical Examiners, Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: *Examination.* Boise, Jan. 14. Director, Board of Medical Examiners, Mrs. Agnes Barnhart, Room 355, State House, Boise.

INDIANA: *Examination.* Indianapolis, June. Exec. Secretary, Board of Medical Registration and Examination, Miss Ruth V. Kirk, 627 K. of P. Bldg., Indianapolis.

KANSAS: Kansas City, Dec. 4-5. Secretary, Board of Medical Registration and Examination, J. F. Hassig, M.D., 905 North 7th Street, Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 16-18. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

MAINE: Portland, Nov. 12-13. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, Dec. 10-13. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1. *Homeopathic.* Baltimore, Dec. 10-11. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, Nov. 19-22. Sec., Board of Registration of Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston 33.

MISSISSIPPI: *Reciprocity.* Jackson, Dec. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

NEBRASKA: * *Examination.* Omaha, June 1947. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, State Capitol Building, Lincoln.

NEVADA: *Examination.* Carson City, Nov. 4. Secretary, Board of Medical Examiners, Dr. G. H. Ross, 215 N. Carson St., Carson City.

NORTH CAROLINA: *Examination.* Winston-Salem, Dec. 16-19 postponed. *Endorsement.* Raleigh, Jan. 16. Act. Sec., Mrs. L. McNeill, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 7-10. Secretary, Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Examination.* Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

SOUTH CAROLINA: Columbia, Nov. 11-12. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination and Reciprocity.* Vermillion, Jan. 21-22. Secretary, Board of Medical Examiners, Dr. Gilbert Cottam, State Capitol Building, Pierre.

VERMONT: *Examination.* Burlington, Jan. 31-Feb. 1. Secretary, Board of Medical Registration, Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Dec. 3-6. Secretary, Board of Medical Examiners, Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WASHINGTON: *Examination.* Seattle, Jan., 1947. Secretary, Mr. Nelson Vaughn, Olympia.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Dec. 10. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

NEW MEXICO: *Examination.* Nov. 3. Sec., Miss Marion M. Rhea, State Capitol, Santa Fe.

RHODE ISLAND: *Examination.* Providence, Nov. 13. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Sioux Falls, Dec. 6-7. Sec., Dr. G. M. Evans, Yankton.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

146:491-636 (July) 1946

Glucose Ingestion During Severe Anoxia. L. Van Middlesworth. —p. 491.
Relation of Action Potentials to Mechanical Activity in Intestinal Muscle. E. Bozler.—p. 496.
Hypersensitivity to Insulin in Eviscerated Hypophysectomized Rats. L. L. Bennett and Louis M. Roberts.—p. 502.
Exchanges of Heat and Tolerances to Cold in Men Exposed to Outdoor Weather. E. F. Adolph and G. W. Molnar.—p. 507.
*Tolerance of Man to Cold as Affected by Dietary Modifications: High versus Low Intake of Certain Water Soluble Vitamins. Nathaniel Glickman, R. W. Keeton, H. H. Mitchell and M. K. Fahnestock. —p. 538.
Water Intoxication and Electroencephalogram. E. Gellhorn and H. M. Ballin.—p. 559.
Effect of Epinephrine and Physostigmine on Response of Striated Muscle to Acetylcholine and Potassium. Clara Torda and H. G. Wolff.—p. 567.
Characteristics of Peripheral Visual Performance. F. N. Low.—p. 573.
Bone Growth in Rat as Related to Age and Body Weight. T. F. Zucker and Lois M. Zucker.—p. 585.
Specific and Nonspecific Nutritional Effects as Illustrated in Bone. Lois M. Zucker and T. F. Zucker.—p. 593.
Relationship Between Total Heat Exchange and Blood Flow in Hand at Various Ambient Temperatures. R. E. Forster, B. G. Ferris Jr. and R. Day.—p. 600.
Gastric Emptying and Intestinal Absorption of Dextrose Solutions. E. F. Birchall, P. F. Fenton and H. B. Pierce.—p. 610.
The Effect of Pulmonary Ventilation on Anoxemia. C. S. Houston. —p. 613.
Development of Peripheral Visual Acuity During Process of Dark Adaptation. F. N. Low. —p. 622.
Effect of Afferent Impulses on Hypothalamic Potentials. E. Gellhorn and H. M. Ballin.—p. 630.

Diet and Man's Tolerance to Cold.—Glickman and his associates carried out experiments on 12 healthy young men over a period of one hundred and fifty days to determine the effect of supplements of the water soluble vitamins to a diet containing only borderline concentrations of these vitamins on their ability to withstand repeated exposures of eight hours' duration either to intense cold (—20 F.) with considerable protective clothing or to a cool environment (60 F.) with little protective clothing. The tolerance to cold was measured by changes in rectal and mean skin temperature and in the performance of a series of psychomotor, perceptual and intellective tests. The basal diet consumed by all subjects was adequate according to current standards in all essential nutrients except ascorbic acid, thiamine, riboflavin and nicotinic acid. The amounts of these vitamins were generally two thirds or less of the recommended allowances of the Food and Nutrition Board of the National Research Council. The supplementary vitamins were given by capsule. When not receiving supplementary vitamins, the subjects received placebos indistinguishable from the vitamin capsules. The results of this experiment indicate that the ability to withstand the damaging effects of repeated exposures to cooling environments and to maintain normal neuromuscular and mental efficiency cannot be appreciably enhanced by giving excessive doses of ascorbic acid, thiamine, riboflavin and nicotinic acid above the amounts required for adequate nutrition. They suggest that the requirements of some of these vitamins are considerably less than the recommended allowances of the Food and Nutrition Board of the National Research Council.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

56:1-140 (July) 1946

Roentgen Diagnosis of Double Aortic Arch and Other Anomalies of Great Vessels. E. B. D. Neuhauser.—p. 1.
Anomalous Right Subclavian Artery Originating on Left as Last Branch of Aortic Arch: Report of Probable Case Diagnosed Roentgenologically. H. M. Stauffer and H. H. Pote.—p. 13.
Saccular Aneurysm of Abdominal Aorta: Report of Case of Eight Years' Duration. J. G. Archer, G. J. Marum and E. T. White.—p. 18.
Hepatodiaphragmatic Interposition of Colon with Gastric Hypertrophy: Case. E Starr.—p. 22.
*Myelography in Patients with Ruptured Cervical Intervertebral Disks. F. Murphey, L. M. Pascucci, W. H. Meade and B. R. Van Zwaluwenburg.—p. 27.
*Phantom Nucleus Pulposus. J. Gershon-Cohen.—p. 43.
Roentgenographic Preparations from Gross Anatomic Sections. H. O. Mahoney, B. J. Anson and R. F. Dent.—p. 49.
Aberrant Pancreas. A. J. Present.—p. 55.
Pancreas and Its Relation to Psoriasis, Eczema and Certain Other Diseases of Skin. W. A. Quimby.—p. 58.
Tumor Dosage and Results in Roentgen Therapy of Cancer of Breast. M. Lenz.—p. 67.
Primary Malignant Bone Tumors: Review of Cases Seen in Radiation Therapy Department of Bellevue Hospital. R. Rosh and L. Raider. —p. 75.
Recovery from Radiation Mutations of Genes. W. Snow.—p. 85.

Myelography in Ruptured Cervical Intervertebral Disks.—Rupture of the cervical intervertebral disks producing pain in the neck, shoulder and arm has been found by Murphey and his associates to be a fairly common lesion. They present their experience with myelography in patients having or suspected of having this condition. They consider pantopaque (ethyl iodophenylundecylate) to be the opaque medium of choice. At body temperature it is one seventeenth as viscid as the iodized poppyseed oils. For this reason it is more easily injected and removed, is less prone to globulation and assumes more accurately the shape of the subarachnoid space. Any portion of it which cannot be aspirated will be absorbed. The authors review observations made in the course of 62 cervical myelograms, of which 28 were positive, with 16 verified at operation. They stress that in many cases the diagnosis can be made solely on the basis of clinical findings. Plain lateral and oblique roentgenograms of the cervical spine often provide helpful confirmatory information. Positive cervical myelographic findings have proved highly accurate in this small series of surgical cases. The significance of negative cervical myelographic findings has not yet been completely determined, although the evidence in this series suggests that a negative picture in the cervical region is of much more value than is a negative one in the lumbar region.

Phantom Nucleus Pulposus.—Phantom nucleus pulposus results in the roentgenographic appearance of an empty space or vacuum in that portion of the intervertebral disk normally occupied by this structure. Gershon-Cohen describes this phenomenon in 3 cases of traumatic spondylitis in the lower lumbar spine and in the lumbosacral articulation. All 3 patients had a history of a severe injury causing intense low backache incapacitating the patient for several weeks. In no instance was there evidence of fracture or dislocation of the vertebrae. Recurrent intermittent backaches were experienced by 2 patients, while the third apparently never was troubled again after the initial injury. Except for the unusual roentgenologic aspects none of the examinations revealed anything abnormal except slight limited motion of the lumbosacral spine in 2 of the 3 patients. There was no neurologic evidence of herniation, yet the history of injury and the localization of the spondylitis to the area of injury leads one to the inference that trauma had some connection with the pathologic process. The severe subchondral osteosclerosis which was present in each case points strongly to injury and inflammatory reaction in and around the cartilage plates. It is conceivable that loss of nuclear substance took place through defects in these cartilage plates, but no evidence of herniation was visible in the vertebral bodies, and no patient had symptoms of posterior protrusion of the nucleus pulposus. The author recommends the study of the vacuum phenomena of healthy and diseased joints as an addition to the intraspinal contrast mediums.

Anesthesiology, New York

7:355-476 (July) 1946

*Analysis of 500 Obstetric Cases with Continuous Caudal Anesthesia Using Pontocaine. H. O. Brown, J. M. Thomson and J. E. Fitzgerald.—p. 355.
Clinical Study of Carbon Dioxide Absorption During Anesthesia. L. H. Mousel, W. A. Weiss and L. A. Gilliom.—p. 375.
Alveolar and Arterial Oxygen Contents During Oropharyngeal Oxygen Therapy. E. M. Christensen, Audrey G. Urry and S. C. Cullen. —p. 399.
Observations on Carbohydrate Metabolism During Prolonged Pentothal Anesthesia in Dogs: I. Blood Sugar and Liver Glycogen. W. M. Booker.—p. 405.
Edema of Larynx, Rare Complication of Endotracheal Anesthesia: Case. W. M. Shaw.—p. 416.
Unusual Incidents Following Spinal Anesthesia: Report of 2 Cases. F. A. Smith.—p. 419.
*Acute Aseptic Meningitis Following Paravertebral Lumbar Sympathetic Blocks. M. H. Adelman and C. I. Irwin.—p. 422.
Nitrous Oxide-Cyclopropane-Curare Anesthesia: Review of 200 Cases. D. A. Holaday.—p. 426.

Caudal Anesthesia in Obstetrics.—Brown and his associates present an analysis of the first 500 cases of continuous caudal anesthesia performed at Cook County Hospital in which tetracaine hydrochloride (pontocaine hydrochloride) was employed in various concentrations both with and without a vasoconstrictor. All of the 500 cases were vaginal deliveries. Because of limitations of time and personnel, the continuous caudal method was employed in less than one tenth of all obstetric cases that were admitted during the eighteen months. A study of the pathogenesis indicates that tetracaine-epinephrine isotonic saline solution is safe and useful for caudal anesthesia, when it is administered and controlled by competent personnel. The use of a vasoconstrictor is advocated in concentrations of 1 : 200,000 epinephrine or equivalent. One to five hours' relief is obtained from each dose, reducing the frequency of injections and minimizing the likelihood of systemic effects resulting from absorption. Caudal anesthesia gives complete relief to the mother and does not cause narcotization of the baby. The rate of cervical dilatation was not significantly altered. The anesthesia and analgesia were satisfactory in 428 cases. Of the remaining 72, 13 were definite failures resulting from inability to insert the needle into the caudal canal. In 28 cases the analgesia was incomplete because of insufficient time or inadequate dosage, but in one third of these the deficiency was remedied by technical adjustments. In 16 there were technical interruptions; obstetric conditions had caused the interruptions in 9 cases.

Aseptic Meningitis Following Sympathetic Blocks.—Adelman and Irwin report 2 cases presenting a clinical picture of acute meningitis developing within six to nine hours after paravertebral sympathetic nerve blocks. The clinical course was benign and of seventy-two hours' duration; no untoward sequelae developed. Studies of the cerebrospinal fluid failed to reveal responsible bacteria. The clinical picture, the repeatedly negative bacteriologic studies and the normal cerebrospinal sugar titers pointed to a noninfectious causative agent. The authors are convinced that the meningitis was neither of bacterial nor of virus origin but was related to the lumbar sympathetic nerve blocks. The subarachnoid space was entered during the procedure and a chemical irritant was introduced intrathecally. The immediate cause of the meningitis must be found either in the equipment or in the anesthetic solution. Since contamination of lumbar equipment could be ruled out, it appears that the anesthetic solution was the immediate cause of meningitis. The absence of signs of subarachnoid block indicates that little procaine was injected intrathecally. Thus it appears unlikely that procaine was the responsible agent. The authors think that pyrogen-containing distilled water produced a chemical irritation of the meninges and acute aseptic meningitis. These cases emphasize that paravertebral sympathetic nerve blocks are not without hazard. The anesthesiologist must exert the utmost care in performing such nerve blocks. Anesthetic solutions should be prepared with pyrogen-free distilled water or isotonic solution of sodium chloride, preferably the latter.

Archives of Dermatology and Syphilology, Chicago

54:1-118 (July) 1946

*Latent Syphilis: Study of 169 Cases Observed Ten Years or More. J. W. Jordon and F. A. Dolce.—p. 1.
Penicillin in Dermatology: Study of 174 Cases. O. Canizares.—p. 19.
Preservation of Virulence of Treponema Pallidum: Some Additional Laboratory Methods. E. K. Stratton.—p. 25.
Temporary Unilateral Loss of Vision Associated with Ioderma. E. A. Hand.—p. 29.
Psychosomatic Aspects of Lupus Erythematosus. J. E. Pisetsky.—p. 33.
Delusion of Parasitosis (Acarophobia). J. W. Wilson and H. E. Miller. —p. 39.
Erysipeloid: Successful Treatment with Penicillin: Case. L. Nicholas. —p. 57.

Latent Syphilis.—Jordon and Dolce present data obtained on 169 patients with latent syphilis observed ten years or more, 100 of whom were considered well treated and 69 poorly treated. The term "latent syphilis" as employed in this study means that there were no clinical signs and symptoms of syphilis at the time of the examination. Diagnosis was usually made because of repeatedly positive serologic reactions or the birth of a congenitally syphilitic child. The authors found that there is a decided tendency for the blood serum of persons with untreated or poorly treated latent syphilis to fluctuate over a period of years. The serologic reactions of approximately 25 per cent of untreated or poorly treated persons with latent syphilis become negative spontaneously and remain so over a period of years. In 20 to 25 per cent of untreated or poorly treated persons with latent syphilis some cardiovascular complication will develop when observations are made over a period in excess of thirteen years. There is a definite relationship between the state of the serum and the ultimate clinical outcome. Persistence of strongly positive serum predicts a poor clinical outcome, whereas a tendency to fluctuate indicates a relatively good clinical outcome. There is a decided tendency for the blood serums of persons with well treated latent syphilis to fluctuate over a period of years. Adequate antisyphilitic treatment of persons with latent syphilis results in only a 17 per cent increase in long term serologic reversals over those that occur spontaneously. Adequate antisyphilitic treatment reduces the hazard of late serious complications to a minimum. There is no relationship between the state of the blood serum in persons with well treated latent syphilis and the development of late complications. Arsenical drugs are more efficacious in preventing late complications than heavy metals. Twenty to twenty-nine injections of an arsenical is adequate therapy. This should be combined with alternating courses of a heavy metal. More than this amount does not result in reduction of complications. Forty to sixty injections, and possibly less, of a heavy metal are adequate. This should be combined with adequate arsenical therapy.

Archives of Ophthalmology, Chicago

36:1-134 (July) 1946

*Use of Diisopropyl Fluorophosphate ("DFP") in Treatment of Glaucoma. I. H. Leopold and J. H. Comroe Jr.—p. 1.
Effect of Diisopropyl Fluorophosphate ("DFP") on Normal Eye. I. H. Leopold and J. H. Comroe Jr.—p. 17.
Visual Disturbances Associated with Head Injuries. J. N. Greear Jr. and J. S. McGavic.—p. 33.
Plastic Repair of Deformities of Socket and Minor Defects About Orbit. K. M. Marcks and G. S. Zugsmith.—p. 55.
Influence of Local Antiseptics on Regeneration of Corneal Epithelium of Rabbits. J. G. Bellows.—p. 70.
Hereditary Disk Shaped (Ring) Cataract: Report on Family, with Microscopic Examination of Eye. E. S. Haro.—p. 82.

Diisopropyl Fluorophosphate in Treatment of Glaucoma.—Leopold and Comroe administered diisopropyl fluorophosphate over a period of six months to 52 patients with glaucoma in one or both eyes. The patients had a total of 78 glaucomatous eyes. Other miotic agents usually had been tried before this drug was used. Patients to be treated were hospitalized, so that intraocular tensions might be estimated with a Schiøtz tonometer. Visual acuities and visual fields were tested, and ophthalmologic examinations were made weekly or biweekly. Solutions of 0.005 per cent diisopropyl fluorophosphate in oil failed to lower intraocular tension. Subsequent clinical trial indicated that 0.05, 0.1 and 0.2 per cent concentrations in oil are suitable in simple glaucoma. When a 0.2 per cent solution was ineffective, little was gained by using stronger concentrations. In the majority of the glaucomatous eyes

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treated with 0.05 or 0.1 per cent oil solutions of diisopropyl fluorophosphate the intraocular tension was controlled with fewer daily instillations than when either 1 per cent pilocarpine nitrate and/or 0.25 to 0.5 per cent physostigmine salicylate in water was employed. In all glaucomatous eyes successfully treated with pilocarpine or physostigmine diisopropyl fluorophosphate was also effective and usually maintained the intraocular pressure at a lower level. No dermatitis or conjunctivitis due to repetitive use of the drug was encountered. In 36 of 78 glaucomatous eyes in which treatment with pilocarpine or physostigmine had previously failed, diisopropyl fluorophosphate maintained intraocular tension below 30 mm. of mercury. It has several untoward and undesirable ocular effects such as visual blurring, brow ache and eye ache, spasm of accommodation and pericorneal injection. A slight depressant effect on serum cholinesterase could be detected from ocular instillations of diisopropyl fluorophosphate in a few cases, but no systemic symptoms were elicited.

Canadian Medical Association Journal, Montreal

55:97-198 (Aug.) 1946

Comparative Study of Some Commercial Preparations of Oral Penicillin. J. C. Meakins, F. Smith and M. A. Gold.—p. 97.
Treatment in Mental Disease, Especially Psychoneuroses. N. Viner.—p. 101.
Psychogenic Factors in Bronchial Asthma. A. T. Henderson.—p. 106.
Myelofibrosis. J. Kaufmann, A. K. Mathisen and J. D. Palmer.—p. 111.
*Development of Anastomosis Between Coronary Vessels and Transplanted Internal Mammary Artery. A. M. Vineberg.—p. 117.
Cysts of Genital Ducts, Müllerian and Wolffian. E. Smith and A. Strasberg.—p. 119.
Recessive Epidermolysis Bullosa. R. D. Roach.—p. 122.
Gallery of Cases. S. W. Smith.—p. 126.
Acute Suppurative Ventriculitis Secondary to Brain Abscess, with Recovery. D. W. Pratt.—p. 128.
Periarthritis of Shoulder. J. D. McInnes.—p. 131.
Infectious Lymphocytosis. H. F. MacInnis.—p. 133.
Prostatitis on North Atlantic Service. W. E. Collins.—p. 135.
Protruded Cervical Intervertebral Disks—Cause of Brachial Neuritis. E. S. James.—p. 139.
Importance of Radical Treatment in Acute Hand Injuries. L. T. Barclay.—p. 142.

Improving Coronary Circulation.—In order to increase impaired coronary circulation, Beck in 1935 sutured the pectoral muscle to the left ventricle and O'Shaughnessy in 1937 grafted the great omentum on to the left ventricle. Fauteux in 1940 attempted to improve the ventricular wall circulation by ligating the vena magna cordis. Vineberg has approached this problem by transplanting the left internal mammary artery directly into the left ventricular wall. He has done this in three different ways. In the first experiment on 6 dogs the internal mammary artery was tied at its distal end between two ligatures and cut. The free end was drawn through a previously prepared tunnel in the wall of the left ventricle and fixed in this position. In the second experiment, which was carried out on 7 dogs, the internal mammary artery was not cut but freed from its bed in its central portion. A slit was made in the wall of the left ventricle and the artery slung into the wound, where it was held by a free pleural graft or by sutures. In experiment 3 the left coronary sinus and anterior descending branch of the left coronary artery was tied. The internal mammary artery was sutured into the wall of the ventricle as in the second experiment. It was found that when the internal mammary artery is transplanted into the left ventricle of the heart it develops anastomotic channels with the left coronary circulation after four months. This has been demonstrated by the free flow of injection fluid from the cannulated internal mammary artery into the branches of the left coronary artery.

Cincinnati Journal of Medicine

27:425-514 (July) 1946

Persistent Problems of Pneumonia. M. A. Blankenhorn.—p. 425.
Pollution Factors in Urban Atmospheres. C. A. Mills.—p. 441.

27:515-594 (Aug.) 1946

Injuries of Nerves and Tendons of Hand. S. Koch.—p. 515.
Present Status of Fluorine in Relation to Tooth Decay. S. Rabkin.—p. 522.

Florida Medical Association Journal, Jacksonville

33:1-60 (July) 1946

Progress in Abdominal Surgery. F. K. Boland.—p. 28.
Pentothal Sodium Anesthesia in Tonsillectomies. L. M. Wachtel.—p. 31.

33:61-112 (Aug.) 1946

Public Health Problems in Florida. W. T. Sowder.—p. 81.
Anaerobic Streptococcus Infection About Rectum in Supralevator Space. D. McEwan.—p. 84.
Conservative Therapy of Cardiac Tamponade Resulting from Wounds of Heart: Report of 4 Cases. H. M. Anderson and R. W. Starbuck.—p. 86.

Hawaii Medical Journal, Honolulu

5:323-384 (July-Aug.) 1946

Electrocardiographic Response to Exercise in 100 Normal Subjects. H. C. Gotschalk and A. S. Hartwell.—p. 323.
Sulkowitch Test in Diagnosis and Management of Hypocalcemic Tetany of Newborn and Infants. T. Yoshina.—p. 327.
Extrauterine Abdominal Pregnancy: Review and Case Report. H. R. Benson.—p. 330.

Journal of Bacteriology, Baltimore

52:1-154 (July) 1946

Botulinum Toxin (Type A), Including Study of Shaking with Chloroform as Step in Isolation Procedure. C. Lamanna, H. W. Eklund and Olive E. McElroy.—p. 1.
Taxonomic Position of Corynebacterium Acnes. H. C. Douglas and Shirley E. Gunter.—p. 15.
Separation of Different Strains of Bacteriophage from Crude Culture. J. Kleczkowska.—p. 25.
*In Vitro Studies Concerning Action of Penicillin on Viridans Streptococci, Including Observations on So-Called Synergistic Effect of Sulfonamide Drugs. B. F. Massell, Mary Meyeserian and T. D. Jones.—p. 33.
Strain Variation as Factor in Sporulating Properties of So-Called Bacillus Globigii. A. E. Hayward, J. A. Marchetta and R. S. Hutton.—p. 51.
Sampling Devices for Air Borne Bacteria. M. Luckiesh, A. H. Taylor and L. L. Holladay.—p. 55.
Effect of Streptomycin on Proteus Infections of Chick Embryo. Z. J. Ordal and Esther Meyer.—p. 67.
Studies on Death of Bacteria at Low Temperatures: II. Comparative Effects of Crystallization, Vitromelting and Devitrification on Mortality of Escherichia Coli. R. S. Weiser and Clarice O. Hargiss.—p. 71.
Relative Activity of Penicillins F, G, K and X Against Spirochetes and Streptococci in Vitro. H. Eagle.—p. 81.
Activity of Penicillin in Relation to Bacterial Spores and Preservation of Milk. H. R. Curran and F. R. Evans.—p. 89.
Nature of Acid Fast Stain. C. Lamanna.—p. 99.
Influence of "Folic Acid" Deficiency in Macaca Mulatta on Susceptibility to Experimental Poliomyelitis. H. C. Lichstein, K. B. McCall, C. A. Elvehjem and P. F. Clark.—p. 105.
Cetyl Pyridinium Chloride: I. Germicidal Properties. R. Quisno and M. J. Foter.—p. 111.
Effect of Environmental Conditions on Penicillin Fermentations with Penicillin Chrysogenum X-1612. J. J. Stefaniak, F. B. Gailey, F. G. Jarvis and M. J. Johnson.—p. 119.
Comparison of Penicillin Producing Strains of Penicillium Notatum-Chrysogenum. F. B. Gailey, J. J. Stefaniak, B. H. Olson and M. J. Johnson.—p. 129.

Action of Penicillin on Viridans Streptococci and Synergistic Effects of Sulfonamide Drugs.—Massell and his associates observed in studies on the in vitro action of penicillin on various strains of viridans streptococci that concentrations of penicillin above the minimal concentration necessary for bacteriostasis have a bactericidal action. For any strain there is a critical concentration of penicillin beyond which further increases in concentration have no increased bactericidal activity. Strains of viridans streptococci differ not only in regard to the minimal concentration of penicillin necessary for bacteriostasis but also in regard to the rate at which they are killed in the presence of an excess of penicillin. There is need for further studies concerning the possible correlation of these two variables. Variations in the number of exposed organisms do not appreciably alter the rate of the bactericidal action of penicillin. Sulfonamide drugs seem to have the following effect on the in vitro action of penicillin: 1. The minimal effective concentration of penicillin is reduced for many strains of viridans streptococci. 2. In the presence of penicillin in amounts above the minimal effective concentration, sulfonamides do not appreciably alter the bactericidal action of the penicillin.

Journal of Immunology, Baltimore

53:209-302 (July) 1946

Production of Typhoid Antibodies in Rabbits with Use of Living Typhoid Organisms Adsorbed on Aluminum Cream. L. S. Mann and Isadore M. Spinka.—p. 209.
Action of Antimony and Some Other Bacteriostatic Substances on Donovania Granulomatis Isolated in Chick Embryo. W. I. B. Beveridge.—p. 215.
Studies of Complement Fixation Reaction in Virus Systems: I. Activities of Vaccinia Virus Antigens and Antisera. Christine E. Rice. —p. 225.
Immunochemistry of Toxins and Toxoids: I. Solubility and Precipitation of Tetanal Toxin and Toxoid in Methanol Water Mixtures Under Controlled Conditions of p_H, Ionic Strength and Temperature. L. Pillemer.—p. 237.
Studies on Chemotherapy of Viruses in Psittacosis-Lymphogranuloma Venereum Group: IV. Effect of Certain Chemotherapeutic Agents on Psittacosis Virus (6BC Strain) Infections in Mice. R. L. Early and H. R. Morgan.—p. 251.
Studies on Lymphogranuloma Venereum Complement Fixing Antigens: I. Enhancement by Phenol or Boiling. Clara Nigg, M. R. Hilleman and Betty M. Bowser.—p. 259.
Id.: II. Serologic Studies with Boiled Phenolized Antigens. Betty M. Bowser and Clara Nigg.—p. 269.
Recovery of Poliomyelitis Virus from Stools of Experimentally Infected Monkeys and Chimpanzees. J. L. Melnick.—p. 277.
Increased Antigenicity of Shigella Paradysenteriae (Flexner) in Saline in Mineral Oil Emulsion: Experiments in Mice and Rabbits. S. P. Halbert, S. Mudd and J. Smolens.—p. 291.

Journal Industrial Hygiene & Toxicology, Baltimore

28:113-166 (July) 1946

Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): V. Effects of Daily Inhalations. L. A. Heppel, P. A. Neal, T. L. Perrin, K. M. Endicott and V. T. Porterfield.—p. 113.
Microdetermination of Antimony in Biologic Material: Spectrographic Method. J. Cholak and D. M. Hubbard.—p. 121.
Therapeutic and Prophylactic Effect of Methemoglobinemia in Inhalation Poisoning by Hydrogen Cyanide and Cyanogen Chloride. B. J. Jandorf and O. Bodansky.—p. 125.
Electronic Counting and Size Determination of Particles in Aerosols. A. C. Buyton.—p. 133.
*Chronic Phosphorus Poisoning. H. Heimann.—p. 142.
Ventricular Fibrillation Induced by Hydrocarbons and Epinephrine. M. B. Chenoweth.—p. 151.
*Mercury Hazards in Seed Treating. H. F. Schulte.—p. 159.
Atmospheric Pollution: New Term and Classification Covering Substances Suspended in Air or Dissolved by It. J. Bandeira de Mello. —p. 162.

Chronic Phosphorus Poisoning.—Heimann reports 3 instances of phosphorus necrosis of the jaw. The first patient was a man aged 40 who had been employed for eight years in the conversion department of a phosphorus plant in which yellow phosphorus was converted into red allotrope. In the radical operation that was performed the integrity of the involucrum and periosteum was not maintained. This resulted in a permanent defect of the jaw. The occurrence of joint pains in this patient is interesting, because rheumatic pains are frequent in workers exposed to yellow phosphorus. The second patient was a man aged 25 who was employed for two years in the same working area as the first patient. His illness began with pain in the region of the left lower molar teeth. Early and conservative therapy resulted in no loss of vital bone structure. The "cystic" appearance of the bone lesions is typical of early phosphorus necrosis of the jaw. The third patient, a man aged 35, had been employed in the packaging of yellow phosphorus for thirteen years. This case shows that when the upper jaw is affected in phosphorus necrosis the disease is especially serious because of its proximity to other vital structures. Upper jaw involvement responds poorly to therapy. The measures for prevention of poisoning by phosphorus are all directed at the yellow allotrope. There is no evidence that red phosphorus is poisonous. Medical control is directed essentially to the mouth. There must be preplacement and periodic medical examinations of all employees who work in areas where yellow phosphorus is handled. No one should be permitted to be employed at these processes unless his dental condition is excellent.

Mercury Hazards in Seed Treating.—Schulte says that the processing of seeds to protect them against fungi that might cause rotting in the soil before germination involves the use of mercury compounds of an extremely toxic nature in an industry where such hazards are otherwise rare. Both mercurial poisoning and dermatitis have been caused by these compounds. Ventilation, good housekeeping, personal protective equipment and adequate sanitation properly applied are needed to protect workers from these hazards.

Journal-Lancet, Minneapolis

66:209-240 (July) 1946

Massive Hemorrhage from Upper Digestive Tract. W. W. Arrasmith. —p. 209.
Treatment of Prostatism. O. E. Sarff.—p. 215.
Hypochromic Anemia: Treatment with Molybdenum Iron Complex. J. C. Healy.—p. 218.
Report on Use of 2,000 Units of Dried Plasma Under Statewide Health Department Program. M. E. Koons.—p. 222.
Looking Ahead in Health Service. R. I. Canuteson.—p. 227.
Future Prospects for Physicians. Judith Grunfel.—p. 229.
Biliary Obstruction in Newborn, with Recovery. E. C. Burke and E. S. Platou.—p. 232.

66:241-276 (Aug.) 1946

Spontaneous Rupture of Hydronephrotic Kidney: Case. R. G. Scherer and J. K. Odegard.—p. 241.
Serology and Obstetrics: II. R. T. La Vake.—p. 244.

Journal of Nat. Cancer Inst., Washington, D. C.

6:303-378 (June) 1946

Inhibition and Stimulation of Tumor Homoiotransplants by Prior Injections of Lyophilized Tumor Tissue. G. D. Snell, A. M. Cloudman, Elizabeth Failor and Patricia Douglass.—p. 303.
Enzymatic Activity of Normal and Neoplastic Tissues of Rat. J. P. Greenstein and Florence M. Leuthardt.—p. 317.
Reactions of Bis (2-Chloroethyl) Sulfide (Mustard Gas) and Some of Its Derivatives with Proteins and Amino Acids. J. L. Hartwell. —p. 319.
Liver Necrosis and Induction of Carbon Tetrachloride Hepatomas in Strain A Mice. A. B. Eschenbrenner and Eliza Miller.—p. 325.
Quantitative Histologic Analysis of Effect of X-Radiation on Interstitial Tissue of Testes of LAF_1 Mice. A. B. Eschenbrenner and Eliza Miller.—p. 343.
Increase in Incidence of Lung Tumors in Strain A Mice Following Long Continued Irradiation with Gamma Rays. E. Lorenz, W. E. Heston, Margaret K. Deringer and A. B. Eschenbrenner.—p. 349.
Sulfhydryl Groups in Cathepsin of Rat Lymphosarcoma. Mary E. Maver and J. W. Thompson, with technical assistance of Antoinette Greco. —p. 355.
Effect of Level of Dietary Protein on Vascular Repair in Wounds. H. W. Chalkey, G. H. Algire and H. P. Morris.—p. 363.
Quantitative Studies on Latent Period of Tumors Induced with Subcutaneous Injections of Agent of Chicken Tumor I: II. Estimation of Latent Period. W. R. Bryan.—p. 373.

Journal of Nervous and Mental Disease, New York

104:1-122 (July) 1946

Disseminated, Diffuse and Transitional Demyelination of Central Nervous System: Clinicohistopathologic Study. L. Roizin, M. Helfand and J. Moore.—p. 1.
Cerebral Vascular Occlusions in Young Adults. I. S. Ross.—p. 51.
Clinical Study of Postdiphtheritic Polyneuritis. R. F. Perkins and M. W. Laufer.—p. 59.
Enuretic Soldier in AAF Basic Training Center: Study of 172 Cases. H. H. Benowitz.—p. 66.
Personality Reaction to Crime and Disease. D. Abrahamsen.—p. 80.
Huntington's Chorea: Report of Case. S. M. Lesse.—p. 84.

Michigan State Medical Society Journal, Lansing

45:703-830 (June) 1946

Otitis Externa. M. D. Campbell.—p. 767.
Benadryl in Hay Fever, Asthma and Vasomotor Rhinitis. S. E. Barnett, F. M. Barbas and S. B. Goss.—p. 771.
Therapeutic Abuse of Thyroid Substance. W. S. Reveno and R. C. Moehlig.—p. 776.
Adoption Procedure and Medical Practice Under New Law: Role of Physician. D. Feld.—p. 779.
Cancer Education in Rural Area. A. E. Heustis.—p. 782.

45:831-998 (July) 1946

Study of Construction, Impairment and Reconstruction of Pelvic Floor: Engineering Problem. C. W. Barrett.—p. 899.
Interpretation of Serologic Reports for Syphilis, with Special Reference to False Positive Reactions. Venereal Disease Control Committee, Michigan State Medical Society.—p. 913.
Syphilis and Penicillin Therapy. Venereal Disease Control Committee, Michigan State Medical Society.—p. 916.
Possibilities of Cure in Far Advanced Cancer. Case Reports: "Curative" Operations on Far Advanced Growths; Cancer Still Localized at Necropsy. H. C. Saltzstein, J. O. Rao and J. A. Yared.—p. 919.

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New England Journal of Medicine, Boston

235:71-100 (July 18) 1946

Surgery of Innominate Artery. G. E. Lindskog.—p. 71.
Outline for Treatment of Severe Burns. S. M. Levenson, R. W. Green and C. C. Lund.—p. 76.
*Effervescent Mixtures as Adjuvants to Rapid Absorption of Ingested Drugs. G. Lolli and Ruth Smith.—p. 80.
Neurology. H. H. Merritt.—p. 84.
Infectious Hepatitis.—p. 89.
Pinealoma.—p. 91.

Effervescent Mixtures to Speed Absorption of Ingested Drugs.—Lolli and Smith describe experiments on 3 healthy persons. The rate of gastric emptying after a test meal was determined. Control determinations were made with water administered ten minutes after the test meal. Later the water was replaced on separate occasions by an equal volume of fluid containing 1.5 Gm. of tartaric acid, 2 Gm. of sodium bicarbonate or an effervescent mixture of 1.5 Gm. of tartaric acid and 2 Gm. of sodium bicarbonate. The rate of emptying was not appreciably influenced by tartaric acid but was greatly shortened by sodium bicarbonate and by an effervescent mixture of the two substances. After determining the volume and hydrogen ion concentration of the stomach contents following the administration of various types of effervescent mixtures, the authors record blood concentrations of sulfathiazole, following its ingestion with and without an effervescent mixture. Another table lists blood concentrations of salicylic acid following the ingestion of acetylsalicylic acid with and without other substances. Attempts at hastening the rate of gastric emptying seem warranted when a quick effect of a drug orally administered is required with minimum irritation of the stomach. The effect attendant on the administration of an effervescent mixture seems to be due in part to the presence of weak alkaline salts and in part to the production of carbon dioxide.

New Jersey Medical Society Journal, Trenton

43:265-306 (July) 1946

Diabetes in Pregnancy. Elisabeth B. Ward.—p. 267.
Electric Shock Therapy in Army General Hospital. L. Reznikoff. —p. 269.
Role of Physician in Adoption. F. I. Krauss.—p. 271.
Theophylline in Treatment of Migraine: Preliminary Report. R. B. Marin.—p. 274.
Body Fluid Balance, with Particular Reference to Heart Failure. W. Stein.—p. 276.
Penicillin in Syphilis and Gonorrhea. T. W. McParland, A. J. Casselman and H. Hendrickson.—p. 279.

43:307-356 (Aug.) 1946

Neuropsychiatric Problems in Veteran and His Family. J. C. Yaskin. —p. 310.
Importance of Rectal Bleeding. J. Gerendasy.—p. 315.
Fitting of Hearing Aids. Eva A. Thompson.—p. 317.
Massive Doses of Vitamin D in Pediatric Practice. I. J. Wolf.—p. 321.
Diarrhea in Army General Hospital. M. Kraemer.—p. 325.
Preoperative and Postoperative Care of the Diabetic. W. Nyiri.—p. 329.
Recent Advances in Ocular Therapy. I. H. Leopold.—p. 332.
Tribute to Dr. Coit. P. Hosp.—p. 337.
The Physician and Social Security. P. Kasius.—p. 342.

Pennsylvania Medical Journal, Harrisburg

49:1065-1176 (July) 1946

Psychiatric Disease Amenable to Care in General Hospital. J. C. Yaskin.—p. 1081.
Meningitis (Nontuberculous) in Children: Clinical Report on 146 Cases. J. A. Jones.—p. 1085.
Tyrothricin: Review of Selected Literature on Subject. F. C. Massey. —p. 1090.
Clinical Application of Liver Function Tests. C. Moses.—p. 1095.
Experiences on the Ledo Road. I. S. Ravdin.—p. 1128.

Physiological Reviews, Baltimore

26:319-478 (July) 1946

Chemotaxis in Leukocytes. M. McCutcheon.—p. 319.
Physiology of Nervous Systems of Invertebrate Animals. C. L. Prosser. —p. 337.
Pharmacology of Veratrum Alkaloids. O. Krayer and G. H. Acheson. —p. 383.
Arthropod Nervous Systems: Review of Their Structure and Function. J. H. Welsh and W. Schallek.—p. 447.

Radiology, Syracuse, N. Y.

47:1-106 (July) 1946

*Early Pneumoencephalographic Findings Following Penetrating Wounds of Brain. J. E. Lofstrom, J. E. Webster and R. C. Schneider.—p. 1.
Scout Film of Abdomen. J. Levitin.—p. 10.
Emptying of Normal Gallbladder with Priodax. B. Copleman.—p. 30.
Pantopaque Myelography: Diagnostic Errors and Review of Cases. G. L. Maltby and R. C. Pendergrass.—p. 35.
Iodinated Organic Compounds as Contrast Media for Radiographic Diagnoses: V. Escape of Pantopaque from Intracranial Subarachnoid Space of Dogs. W. H. Strain, J. D. French and G. E. Jones.—p. 47.
Delayed Excretory Urography: Value of Twenty-Four Hour Urogram. N. Heilbrun and G. Chittenden.—p. 51.
*Pulmonary Calcifications: Roentgenographic Observations in Relation to Histoplasmin and Tuberculin Reactions. H. B. Zwerling and Carroll E. Palmer.—p. 59.
Tenia Saginata: Case Report. J. B. Hamilton.—p. 64.
Roentgenography of Adenoids. H. L. Weitz.—p. 66.

Penetrating Wounds of Brain.—Lofstrom and his associates report 23 pneumoencephalographic studies made during the care of 256 patients with penetrating cranial wounds. The time at which the pneumoencephalograms were made varied from fourteen to ninety days after the original injury, which corresponds essentially with the date of primary débridement. Following loss of cerebral tissue an enlargement of the ipsilateral ventricle was usually observed. When serious loss of tissue occurred, the contralateral ventricle also dilated and the ventricular system shifted to the affected side. The ventricular enlargement was usually proportional to the loss of tissue. Ventricular distortions occurred with small bone defects and in the presence of a tightly closed dura or dural graft. Ventricular enlargement occurred at an early period following primary débridement. During this period the hydrodynamic effect is largely a mechanical factor compensating for the loss of cerebral tissue. The common finding of localized or generalized adhesive arachnoiditis indicates a disruption of the normal cerebrospinal fluid elimination mechanism, which is of significance. It seems likely that further progression of ventricular dilatation will occur.

Pulmonary Calcifications.—Zwerling and Palmer examined 6,199 student nurses by roentgenography and tested them with tuberculin and histoplasmin. Of this number 698 showed pulmonary calcification. Among the latter group 57 were tuberculin positive, 494 were histoplasmin positive and 109 had positive reactions to both tuberculin and histoplasmin. Of the 698 persons with definite or probable calcification only 38 (5.4 per cent) were negative to both tuberculin and histoplasmin. The level of tuberculin sensitivity was approximately the same in Kansas City, Mo., as in Philadelphia, 26.3 and 26.6 per cent respectively. Four times as many student nurses showed calcification in Kansas City as in Philadelphia, and over four times as many were sensitive to histoplasmin. This suggests an association between pulmonary calcification and sensitivity to histoplasmin in the Central Eastern states. It is likely that this sensitivity is an indication of previous infection with Histoplasma capsulatum or an immunologically related organism and that infection with this organism is not necessarily grave but is widespread in subclinical form. Since in most instances it had not been possible to distinguish between tuberculin positive and histoplasmin positive calcification it may be inferred that during the active phase of the infection the x-ray appearance of the benign form of histoplasmosis can resemble tuberculosis. Consideration of the tuberculin reaction and the recovery of the tubercle bacillus is therefore essential for the final diagnosis of pulmonary tuberculosis.

South Carolina Medical Assn. Journal, Florence

42:183-208 (July) 1946

Proctologist's Message to General Practitioner. L. J. Hirschman. —p. 183.
Nutritional Status of People of South Carolina. J. P. Price.—p. 186.
Congenital Malformations Following Rubella in Mother: Some of Public Health Aspects. J. W. Davis Jr.—p. 190.

42:209-240 (Aug.) 1946

Anti-Histamine Agents. W. H. Kelly.—p. 209.
Hot Weather Pediatrics. J. I. Waring.—p. 211.
Amenorrhea, Its Causes and Treatment. R. F. Zeigler, Jr.—p. 213.

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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:77-110 (July 20) 1946

Total War on Cancer. G. F. Stebbing.—p. 77.
Observations on Liver Function Tests in Diseases Not Primarily Hepatic. A. B. Carter and N. F. Maclagan.—p. 80.
Rheumatic Fever in R. A. F.: Results of Treatment at Convalescent Center. H. S. Barber.—p. 83.
Erythroblastosis Fetalis. Margaret Venters.—p. 84.
Achromotrichia in Tropical Malnutrition. W. Hughes.—p. 85.
Conus Medularis Syndrome in Spinal Contusion. G. A. Ransome, R. K. A. van Someren and J. F. Stokes.—p. 87.

2:111-148 (July 27) 1946

Study of Onset and Cycle Development of Sprue Syndrome. K. D. Keele.—p. 111.
*Surgery and Relapse Rate of Malaria. W. Kark.—p. 114.
Vinesthene Anesthesia for Repair of Hare Lip and Cleft Palate. Phyllis F. L. Daplyn.—p. 117.
Case of Polyneuritis Due to Gold. E. J. R. Leiper.—p. 119.
Case of Myiasis Due to Warble Fly Larvae. A. Smith and D. P. Greaves.—p. 120.
Vitamin C Nutrition in Northeast England. J. Black.—p. 122.

Surgery and Relapse Rate of Malaria.—Kark reports 153 cases in which 176 operations were performed. Previous attacks of malaria had occurred in some of these, while in others without such a history early postoperative attacks suggested a previous latent malaria. In all these cases no form of suppressive or prophylactic antimalarial treatment was given. There was a postoperative attack of malarial fever in 10 per cent. The conditions under which observations were made render it certain that this figure of 10 per cent is in excess of the relapses brought on by surgical operation. The investigation tends to throw doubt on the assumption that surgery commonly precipitates relapses of malarial fever. The relapse rate was practically the same whether the surgical operation had been of major or minor variety. Local analgesics containing epinephrine were followed by a higher proportion of attacks of fever than were other forms of anesthesia. Three or more attacks of malarial fever during a period of two years preceding operation appeared to confer some immunity and to reduce the incidence of postoperative relapse. A first or second attack within a period of six months preceding operation seemed to increase the liability to postoperative malaria. The findings in this group of cases were compared with those found in 147 operations on patients who had received and completed suppressive treatment before operation. The postoperative relapse rate in these cases was found to be practically the same as that in which suppressive treatment had not been administered. In the third group of 1,900 surgical battle casualties suppressive quinacrine, instituted a considerable time before the battle trauma and continued throughout the period in the hospital, virtually eliminated postoperative malaria.

Lancet, London

2:109-148 (July 27) 1946

Effects of Use and Disuse on Nerve and Muscle. J. Z. Young.—p. 109.
Penicillin Sensitivity of Bacterium Typhosum. R. W. Evans.—p. 113.
*Sulfathiazole and Penicillin in Typhoid Fever: Report of 6 Cases. C. J. McSweeney.—p. 114.
Malaria Transmission in Borneo. J. N. McArthur.—p. 117.
Penicillin via Fallopian Tubes. A. R. Frisk and A. Westman.—p. 118.
Digestibility of High Extraction Wheaten Flours. R. G. Booth and T. Moran.—p. 119.

Sulfathiazole and Penicillin in Typhoid.—A patient with typhoid was given doses of penicillin appropriate for a staphylococcic infection with no appreciable effect on the pyrexia or blood cultures, although toxemia was much lessened and there were no complications due to ulceration. Four patients with typhoid were treated intensively with penicillin and sulfathiazole, receiving two courses each comprising 10,000,000 units of penicillin and about 34 Gm. of sulfathiazole given in four days. Speedy disappearance of toxemia, subsidence of pyrexia and disappearance of organisms from the blood, feces and urine followed the end of the second course in 3 of the 4 cases. In the fourth case, when the second course was postponed for about a fortnight there was a relapse, which rapidly subsided when the second course was initiated. Another patient with severe typhoid was treated with the combination of penicillin and sulfonamides and the conclusion was reached that there appears to be a strong case for extending this new treatment to the typhoid carrier state.

Paris Médical

1:249-264 (June 8) 1946

*Mental Anorexia and So-Called Hypophysial Cachexia (Conclusions Drawn from 13 Observations). J. Decourt.—p. 249.
Myxedematous Anasarca. R. Cachera.—p. 254.

Mental Anorexia and Hypophysial Cachexia.—Decourt reports 13 cases of a syndrome consisting of amenorrhea, anorexia and rapid cachexia in girls and young women between the ages of 15 and 32 years. The loss of body weight varied from 14 to 33 Kg. In 12 of the cases recovery resulted from psychic therapy and particularly from the resulting resumption of absorption of food in the absence of any opotherapy. The incidence of Simmonds's disease, conceived as a purely organic disorder due to primary atrophy of the anterior lobe of the pituitary, is rare. A large number of cases which were reported as Simmonds's disease should be reconsidered on the concept of mental anorexia. The latter condition results primarily from a psychic disorder, although a disorder of the diencephalohypophysial function may play some part in the physiopathology of mental anorexia and may explain the inaugural character of the amenorrhea. In considering mental anorexia as a psychoendocrine disorder, its origin as well as its therapy remains psychic. Complete recovery occurs from mental reeducation associated with isolation, rest in bed and resumption of food absorption, provided this treatment is not instituted too late. The return of menstruation within three to five weeks in some of the author's cases may have been the result of psychotherapy rather than that of rebuilding by the nutritive substances. Irreparable damage may have occurred prior to late treatment in cases in which amenorrhea persisted in spite of the restoration of the nutrition balance. Atrophy of the anterior lobe of the pituitary may be not only the cause but also the sequel of denutrition.

Schweizerische medizinische Wochenschrift, Basel

76:453-476 (May 25) 1946

Results of New Local Treatment for Hay Fever. H. Fredenhagen.—p. 453.
Does Leriche's Intraperitoneal Procaine Hydrochloride Injection Prevent Operative Shock in Intervention on Peritoneum? Third Note. E. Frommel and J. Piquet.—p. 455.
Does Inhibition of Cholinesterase in Course of Operative Shock Represent a True Cause of Shock? Fourth Note. E. Frommel and J. Piquet.—p. 456.
*Hydronephrosis and Glomerulonephritis: Experimental Study. F. Reubi.—p. 457.
Behavior of Plasma Proteins After Birth. G. A. Lindeboom.—p. 461.
Humoral Control of Gastric Secretion Phase. B. Uvnäs.—p. 463.
Acute Alcohol Intoxication and Motor Car Accidents: IV. Alcohol Intoxication in Federal Traffic Law. E. Martin-Achard.—p. 465.

Hydronephrosis and Glomerulonephritis.—Reubi produced unilateral hydronephrosis in 2 rabbits by ligation of the ureter. At intervals of ten and thirty days respectively a hematogenous glomerulonephritis was produced in both experimental animals by the method of Masugi (injection of duck antiserum); only extremely mild inflammatory changes were, however, produced in the glomeruli of the kidneys in which the ureters had been ligated. The flow of blood in the corpuscles of Malpighi proved sufficient. Contrary to the view of other authors, it is not to be considered as assuming an important role in this phenomenon. The pressure of the urine on the wall of the pelvis of the kidney, which consequently tends to compress the loops of the glomeruli, did not exceed 20 cm. of water. With the full value of the oncotic pressure it remained inferior to the glomerular tension, but it proved equal to the pressure of filtration and exercised itself in the contrary way. It became evident that the urinary stasis is efficient in protecting the glomeruli by opposing the filtration of a toxin which results from the antigen-antibody reaction. The existence of such a toxin and its role in the pathogenesis of nephritis seem to be supported by these experiences.

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Book Notices

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., Clinical Professor of Orthopedic Surgery, Washington University School of Medicine, St. Louis, Missouri, and H. Earle Conwell, M.D., F.A.C.S., Orthopaedic Surgeon to the Tennessee Coal, Iron and Railroad Company, Birmingham, Alabama. Fourth edition. Cloth. Price, $12.50. Pp. 1,322, with 1,316 illustrations. St. Louis: C. V. Mosby Company, 1946.

This volume provides sane, sound and sensible advice for the treatment of fractures, dislocations and sprains. Advice against too early massage or the use of brisement forcé in after-treatment is rightly stressed. Too little reference or description, however, is detailed of efficient mechanical use of the fracture table. This seems unfortunate because it is in this technic that the average man treating fractures fails miserably. Likewise the stand taken on the use of x-ray examination is that of an aid rather than a confirmation of diagnosis and not always to be employed with a belief that clinical observation and diagnosis of fracture remain paramount. This is doubtful teaching.

The need in a textbook of this character for the chapter on workmen's compensation laws affecting fractures is not obvious. The laws of one state differ from the laws in other states.

From the standpoint of the student it is to be regretted that there are given in the text practically no references to the literature on the subjects discussed. The chapters contributed by Drs. Fincher and Brown and the chapter on the spine aided by Dr. A. G. Davis are shining exceptions and consequently much more valuable. The newer substances used for spinal myelography are not mentioned. There is a frequent use of nouns for adjectives. Several misspelled words—especially proper names—are found. Many of the illustrations are so vague and noninformative that they might better have been omitted for space saving. Figures 496, 465 and 454 seem identical, yet are printed three times.

There are frequent solecisms and lapses into informal language, as "red hot case" on page 584. Many of the pages were smudged with ink.

The text consequently, although conforming to orthodox classifications and description of the various phases of the subjects included, is loosely verbose. It wants at least two things: first a literary editor to cut about one third of the words employed and second an art editor to pose the various lesions shown in the photographs of patients covering particularly the backgrounds and to strengthen the reproductions of the rather weak appearing halftones of roentgenograms. Also might be elided the innumerable reproductions from the catalogue of a friendly splint manufacturer. Were this done, were the volume reduced in words, its ponderousness (weight 6½ pounds) would not become such a problem to student and reader and its usefulness would be enhanced. In spite of these points this book will remain one of the most popular trustworthy ones on the subject.

Studies in Hypertony and the Prevention of Disease. By I. Harris, M.D., in co-operation with J. T. Ireland, B.Sc., A.I.C., G. V. James, M.Sc., A.I.C., Edward Cronin Lowe, M.B.E., M.B., B.S., and C. E. Vernon, M.Sc., A.I.C. Cloth. Price, $3. Pp. 114, with 9 illustrations. Baltimore: William Wood & Company, 1946.

This little book purportedly deals with the influence of calcium and cholesterol in the production of hypertension, together with observations on high and low protein diets, and the interrelation of iron, phosphorus, potassium chloride, calcium and sulfur. Included are notes on the periodic examinations of normal subjects, tests for glucose tolerance, fractional gastric analysis, the influence of fats on protein metabolism, and potassium requirements. The book is poorly written and apparently published without editorial supervision. The experimental data submitted are wofully inadequate to prove any contention, yet broad generalizations are drawn and specific statements made. Most of the experiments are with rabbits and without collateral work on man. The reader is left in a quandary as to how many of the definite conclusions regarding human dietary problems could have been made. One has the impression that the answers were already in the minds of the investigators before the experiments were undertaken. Certainly from the data submitted conclusions, even regarding rabbit physiology, could not safely be drawn. The senior author has a deep-seated grudge toward certain members of the Medical Research Council (British) and, reading between the lines, it is evident that he could not voice his opinions in the regular medical journals. Therefore he resorted to the publication of a book, printed in America, to unburden his soul. This was an expedient used by some authors a century or more ago, and many of the passages are reminiscent of the haggling and innuendoes cast before the public in those days. The introduction of the book is chiefly concerned with this controversy, and there are repetitive references to it throughout the work. The senior author is especially verbose, but not eloquent, regarding the action of the council in introducing a higher calcium content into the British bread.

Psychiatry for Social Workers. By Lawson G. Lowrey, M.D., Cloth. Price, $3.50. Pp. 337. New York: Columbia University Press, 1946.

The author has described the data of modern clinical psychiatry in a fashion designed to enable the social worker to recognize and evaluate deviations in mental functioning and to refer clients properly. Emphasis has therefore been placed on indicator symptoms, and theoretical formulations are kept to a minimum. The approach is practical and direct, the relationship of psychiatry to medicine is stressed and the author's healthy attitude is manifest in his eclectic presentation. The first chapter, on the data of psychiatry, contains many useful guides to interviewing. The chapter on clinical combinations of symptoms is of special value to the social worker, who must generally classify the productions of the client as the first step in evaluating the deviation. Among the subjects covered by other chapters are the psychoses, neuroses and psychopathic personalities. The evaluation of treatment possibilities is especially good. The material is sometimes too technical and detailed for the reader who lacks medical training. The presentation of the convulsive disorders has the fault of being oriented toward institutional epileptic patients to the neglect of noninstitutional epileptic patients, who can be helped so much by the doctor and social worker team. A disproportionately large share of this book is devoted to the psychoses at the expense of adequate discussion of the neuroses and psychosomatic problems which constitute a large part of the social worker's case load.

Electrocardiography in Practice. By Ashton Graybiel, M.D., Captain, Medical Corps, U. S. Naval Reserve, Co-ordinator of Research, U. S. Naval School of Aviation Medicine, Pensacola, Florida and Paul D. White, M.D. With the Assistance of Louise Wheeler, A. M., Executive Secretary, the Cardiac Laboratory, Massachusetts General Hospital, Boston, and Conger Williams, M.D., Assistant in Medicine, Harvard Medical School, Boston. Second edition. Cloth. Price $7. Pp. 458, with 323 illustrations. Philadelphia & London: W. B. Saunders Company, 1946.

This edition is a vast improvement over the first. It is much larger, better organized and more systematic. It is divided into five parts. The first part is devoted to principles and technic. In it has been included an excellent summary of chest leads which should help the reader to gain some insight into the recent developments. The description of the manner of interpreting electrocardiograms has been improved by bringing into this section some of the material in the appendix of the previous edition.

The second part deals with the wide variations in the contour of the normal electrocardiogram; included are many new illustrations with the three chest leads CF_2, CF_4 and CF_5, which the authors now employ. The use of the term "most normal" and "least normal" to indicate uprightness of T waves in the chest leads is regrettable; it does not necessarily follow that a taller T is more normal than a smaller upright T.

The third section deals with the arrhythmias. It is introduced by a description of the analysis of an electrocardiogram in order to arrive at a differential diagnosis. This is followed by a brief evaluation of the clinical significance of arrhythmias and an extensive table showing the electrocardiographic findings in the principal arrhythmias. As a whole the illustrations in this section are adequate. In each illustration the legend is divided into an electrocardiographic interpretation, a full presentation of the clinical findings and a comment. Exception may be

taken to some of the interpretations. Thus in figure 45 the authors fail to diagnose the shifting pacemaker present. In figure 49 the diagnosis of auricular paroxysmal tachycardia with aberrant conduction is not sustained by the argument; the record may very well be a ventricular paroxysmal tachycardia. In figure 53 (and in other instances dealing with complete auriculoventricular block) it would be preferable to consider that the abnormality of the ventricular complex is due to the location of the idioventricular pacemaker below the bifurcation of the common auriculoventricular bundle rather than to attribute it to bundle branch block. One cannot agree with the definition of ventricular escape given on page 104 or with the interpretation of sinuauricular block in figure 84. It is doubtful that there is auricular standstill in leads 1 and 3 of figure 85.

The fourth section takes up the electrocardiographic contour and patterns encountered in various diseases of the heart. This part has been expanded especially to show chest lead patterns. At the end of the section various artefacts are shown. This section is introduced with a general outline which is brief and to the point. Table 3, which gives a summary of the findings in the principal disturbances of the heart, may be useful to certain types of readers who are impressed with extensive tabular data. A table also is introduced to show the electrocardiographic abnormalities encountered with drugs. This is very extensive but can be criticized in the same manner as table 3. The Q waves in leads 2 and 3 of figure 89 are not prominent. The amplitude of QRS in the chest leads of figure 91 is not large. The authors fail to describe the normal appearance of the chest leads (especially the T wave) in children, which should be useful for comparison with the abnormal appearance found in congenital and rheumatic heart disease in this age group. The section dealing with recent infarction is highly to be recommended.

The last section contains an entirely new series of electrocardiograms for practice in interpretation; they serve their function excellently with a few exceptions. In figure 264 the description and interpretation are inadequate; the premature ventricular systole in lead 3 is not mentioned nor is it distinguished from the nodal escape which causes the last beat in this lead. The first beat in leads 1 and 2 of this electrocardiogram are also premature and the second beats in these leads are nodal escapes. In figure 265 the statement "the auricular action seems somewhat depressed too as though the sinus node were not working well" is ambiguous. Figure 297 is misinterpreted; it shows frequent nodal premature systoles.

In the appendix there is an extensive development of the so-called unipolar leads and of the esophageal electrocardiogram as well as a discussion of the effects of exercise and anoxemia on the electrocardiogram. In the discussion of unipolar leads the authors fall in the trap which is so common in such discussions; they state on page 433 that "the central terminal has a potential of zero" despite the fact that at the beginning of this page they more properly point out that "the potential variation is small enough to be considered zero for this purpose." Even this last statement is subject to debate.

In the illustrations the authors use two types of time lines; in the majority the time lines are 0.1 second apart; in some, however, they are 0.04 second apart. This is not always made clear, and the uninitiated reader may be confused.

It must not be taken from these criticisms, which are few and relatively minor, that the book is inaccurate or inadequate; on the contrary, it is excellent and accurate. The criticisms have been made in the hope that the few errors that have crept in may be remedied in future revisions. This book should be extremely useful to the cardiologist and internist who has some background in the field of electrocardiography and who desires to review the circumstances in which the various arrhythmias and electrocardiographic contours are encountered. He will find especially valuable the integration with the other clinical findings which the "case report" method employed lends itself to so well. To the practicing physician the case report method with stress on the clinical observations will be quite gratifying. He may find that he is learning a great deal of clinical cardiology as well as electrocardiography. The book is recommended.

Phonocardiographie: Auscultation collective (acoustique—technique—clinique). By C. Lian, professeur agrégé à la Faculté de médicine de Paris, G. Minot, et. J.-J. Welti. Préface du professeur A. Strohl. Paper. Pp. 256, with 121 illustrations. Paris: Masson & Cie, 1941.

This monograph, which appeared five years ago, covers the work which Lian and his associates have been concerned with for the past fifteen years. It is divided into three parts. The first deals with the fundamentals of acoustics and the physiology of auscultation in a rather sketchy fashion. The second part deals with technic. The principles of phonocardiographs, in particular the one developed by this French group, is described as well as the special electrocardiograph, the electrokymograph for recording pulsatory phenomena, the cardioscope and the phonograph for recording heart sounds which they developed. The third section deals with the clinical aspects of heart sounds and murmurs and is far more complete. The normal and extra heart sounds, gallop rhythm and cardiac murmurs are extensively reviewed and related to the other events in the cardiac cycle. The final two chapters deal briefly with vascular sounds and murmurs and with recording of abdominal and respiratory sounds. The bibliography included is fairly complete. The clinical section suffers, as do many reports on recorded acoustic phenomena of the heart, because the authors do not clearly distinguish the limits of their instrumental error. The vibration frequencies attributed by them to the various sounds and murmurs may represent to a varying extent the distortions imparted to them by the recording device. Nevertheless, with this limitation, the clinician will be brought up to date on the modern views of the various acoustic phenomena he is apt to encounter, particularly those views of the French school to which Lian has contributed. This monograph does not approach in scholarliness some of the other recent reviews and monographs which have appeared on this subject; however, the cardiologist acquainted with the field will find that it will repay him to peruse it.

Problems in Solutions and Dosage: Arithmetic Review. By Stella Goostray, B.S., M.Ed., R.N., Principal, The Children's Hospital School of Nusing, Boston, Massachusetts. Paper. Price, $1.50. Pp. 99, with 8 illustrations New York: Macmillan Company, 1945.

This volume is no doubt intended as a review or refresher course in the fundamental arithmetical processes together with several chapters which deal with the calculations with which nurses are involved. The forepart of the book, which deals entirely with elementary arithmetical processes, is followed by chapters on the metric and apothecary systems, solutions and dosage. The chapters on solutions and dosage may well prove of value to one who wishes to have available type formulas for calculations on these subjects. Although not being a complete textbook of the calculations with which a nurse may be involved, as a review of the topics it covers it may prove helpful.

Professional Adjustments in Nursing for Senior Students and Graduates. By Eugenia Kennedy Spalding, R.N., M.A. Third edition. Cloth. Price, $3.50. Pp. 509, with 32 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1946.

This volume is in its third edition, and there are two pages of acknowledgments indicating the extent to which the author has been associated with all the leading agencies in the field of nursing. The book is primarily of interest to nurse educators, economists and public health workers. It covers completely such subjects as social, economic and professional outlook of the graduate nurse, choice of a specialty, the professional organizations in the nursing field, and the legal and professional relationships of nurses. Each section is supplemented with an extensive bibliography and with a series of problems. The appendix is full of valuable reference data. A good index helps to complete the volume.

Analecta Psychiatrica. By J. R. Whitwell, M.B. Cloth. Price, 16s. Pp. 160. London: H. K. Lewis & Co., Ltd., 1946.

The author has collected from a great variety of writers brief paragraphs and notes concerning psychiatric subjects. Here he groups them according to such subjects as suicide, causes of mental disorder and interesting cases. The book should be especially useful to psychiatrists who have agreed to write papers for medical societies.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HAZARDS TO MEAT PACKING WORKERS

To the Editor:—**For the past fifteen years I have taken care of the injuries sustained in a local meat packing house. During that time the great majority of the injuries were lacerations caused by knives with which the employees were working. It has not been my habit during this time to administer prophylactic doses of either tetanus or gas gangrene antitoxin. There have not been any cases of tetanus or gas gangrene developed. My experience would seem to indicate that I need not now begin to use them. However, I should like to know what the usual procedure is in large meat packing houses.**

M.D., Ohio.

ANSWER.—Both tetanus and gas gangrene antitoxin are administered to at least some workers in abattoirs who sustain puncture wounds from hooks on which meat is suspended but not to workers who have lacerations from knives. Puncture wounds occur considerably less frequently than cuts from knives. In fifteen years' experience in one abattoir tetanus or gas gangrene infection has not been observed. Such infections are not usually regarded as occupational hazards of such workers.

Pyogenic infection and infection with Erysipelothrix rhusiopathiae—erysipeloid of Rosenbach—are the chief occupational hazards among workers in abattoirs. Of 100 cases of erysipeloid reported (Klauder, J. V.: Erysipeloid as an Occupational Disease, THE JOURNAL, Oct. 8, 1938, p. 1345) 58 were observed among employees in abattoirs and an additional 3 among butchers in retail stores. It was observed in this study that erysipeloid infections occurred in 9 cases despite the application of alcohol, tincture of iodine or mercurochrome at the site of injury immediately or soon after the infliction of injury.

The application of Erysipelothrix rhusiopathiae immune serum to injuries sustained by employees in abattoirs may prevent erysipeloid. In addition to the expense of such serum, its use may interfere with treatment of such injury in the direction of preventing pyogenic infection. The prevention of pyogenic infection is probably of greater importance than is erysipeloid, since the latter infection is invariably a self-limited disease.

Erysipelothrix rhusiopathiae is sensitive to the action of penicillin (Heilman, F. R., and Herrell, W. E.: Penicillin in the Treatment of Experimental Infections Due to Erysipelothrix Rhusiopathiae; Proc. Staff Meet., Mayo Clin. **19**:340 [June 28] 1944). Local application of penicillin may serve the purpose of preventing both pyogenic infection and erysipeloid. Sulfonamide compounds were ineffective in treating Erysipelothrix rhusiopathiae infection experimentally produced in mice (Klauder, J. V., and Rule, Anna M.: "Sulfonamide Compounds in Treatment of Erysipelothrix Rhusiopathiae Infections, *Arch. Dermat. & Syph.* **49**:27 [Jan.] 1944). It is therefore not to be expected that application of a sulfonamide compound would prevent erysipeloid.

GRAFTING OF SCALP

To the Editor:—**Is it possible or advisable to graft scalp for plastic procedures? A man aged 42, who received roentgen therapy of the scalp in his youth for a scalp infection, has become entirely bald. The scalp is pitted with telangiectasis and is very unsightly. He has been advised to have a plastic operation.**

M.D., Michigan.

ANSWER.—As a rule the substitution by grafting of hair bearing skin for non-hair bearing scalp is not a satisfactory procedure from the point of view of replacing hair. In the case mentioned in the query, however, the unsightly telangiectatic scalp could be replaced by more normal looking skin. An additional and more important point which should be considered is the possibility of malignant degeneration which may occur a number of years after roentgen therapy. The last alone is ample indication for a plastic operation.

SPASMODIC TWITCHING OF TENSOR TYMPANI

To the Editor:—**What are the causes of spasm or fibrillation of the tensor tympani in the absence of any demonstrable focus of irritation in the external auditory canal?**

R. J. Dickinson, M.D., Ridgway, Pa.

ANSWER.—Spasmodic twitching of the tensor tympani is analogous to twitching which frequently occurs in the orbicularis oculi muscle and is the result of nervous fatigue. Increased rest should be advocated, and small doses of a sedative such as phenobarbital may be tried.

NEPHROSIS

To the Editor:—**What is the treatment of nephrosis in a child aged 4 years? Is there such a disease as pure nephrosis? It has been my impression that most clinicians believe that a concomitant nephritis exists in these cases. What clinical and laboratory tests are important in establishing a diagnosis and following the progress of the disease? What percentage recover completely?**

M.D., New York.

ANSWER.—While there is probably no such disease as pure nephrosis in the adult whose nephrotic syndrome begins after adolescence, there is undoubtedly a small proportion of children with the syndrome in whom the clinical and pathologic criteria of pure nephrosis are satisfied. Even in these instances the disease is primarily glomerular in origin rather than tubular, as originally believed; but the process in the glomeruli is a degenerative one, without the earmarks of inflammation as seen in glomerulonephritis. Clinically it may be impossible to differentiate pure nephrosis from the nephrotic stage of a mild glomerulonephritis unless the child has been seen very early in the disease. From the standpoint of treatment it makes little difference. The diagnosis of pure nephrosis has been made too often in the past. At the same time it must be emphasized that the extreme rarity of the disease cannot logically be used as a reason for denying its existence.

The criteria for the diagnosis of the pure nephrotic syndrome are both positive and negative. The positive group includes massive proteinuria, hypoalbuminemia, edema and effusions into body cavities, lipemia, casts and epithelial cells, including the lipoid variety, in the urinary sediment and a chronic course. The negative criteria include the absence of a history of acute nephritis, of more than the normal number of red blood cells in concentrated specimens of urine on numerous examinations, of any impairment of renal function not attributable to extrarenal factors, of hypertension and its cardiovascular consequences. Orthostatic albuminuria and cylindruria may persist for years in a child who has recovered from nephrotic glomerulonephritis and lead to a mistaken diagnosis of chronic nephrosis. The absence of other symptoms and signs is the crucial differentiating feature.

The progress of the nephrotic syndrome or disease is best measured in terms of the degree of proteinuria and edema, of the level of the serum albumin and the general state of nutrition, and of the continued absence or gradual appearance of nephritic signs. Acute infections may lead to severe relapses, death or temporary remissions. The so-called nephrotic crisis may occur with severe abdominal pain, fever, vomiting and collapse, with or without signs of bacterial peritonitis. These attacks are usually associated with striking decrease in the amino acid level of the serum (Farr, L. E., and MacFadyen, D. H.: Hypoaminoacidemia in Children with Nephrotic Crises, *Am. J. Dis. Child.* **59**:782 [April] 1940). Confusion with surgical abdominal conditions is easy.

The prognosis in the past has not been too bright for children with nephrosis, although it has been better than in those with progressive chronic glomerulonephritis, hypertension and renal insufficiency. It is probable that the present specific chemotherapy for intercurrent infections will permit a larger percentage of nephrotic children to "outgrow" their disease. Schwartz, Kohn and Weiner (Lipid Nephrosis, *ibid.* **65**:355 [March] 1943) observed 40 cases of nephrosis as the accumulated experience of twenty years, during which time 400 children with glomerulonephritis were seen; 22 of these, or 55 per cent, died within a few years; of the remaining 18, 8 were followed for seven to twenty years, and 6 had reached ages 15 to 23. Of the latter group 4 definitely showed nephritic signs and only 1 of the 8 had a normal urinary red blood cell count. Of the 12 that came to necropsy, 50 per cent showed definite glomerulonephritis, from which the authors rightly concluded that glomerular inflammation must have been present at the very onset. These patients had died between one year and three and one-half years after their illness began. The rest, with survival periods of less than a year, showed either no significant pathologic changes in the glomeruli or some congestion. In all the necropsy cases tubular degeneration was found. In a discussion of this paper Farr reported a mortality of 44 per cent among 36 children with nephrosis observed during a period of six years. Complete recovery occurred in 10 cases, or 28 per cent. In contrast are the figures given by Schwartz, Kohn and Weiner (The Prognosis of Nephritis and Nephrosis in Childhood, *New York State J. Med.* **40**:409 [March 15] 1940) for the 400 children with acute and chronic glomerulonephritis. Of the 244 children with acute nephritis 5.3 per cent died, 84 per cent recovered completely and 12 per cent developed chronic progressive nephritis. In 115 children with a diagnosis of chronic nephritis on their first admission the mortality was 50 per cent within the first year and the total mortality was 60 per cent

during the period of observation. Only 8 per cent survived a five year period, and almost all of these patients had active nephritis.

As to treatment, the primary considerations are the maintenance of adequate nutrition to replenish the wasted protein and promote normal growth, the mobilization of edema and the prevention or prompt treatment of intercurrent infections. The diet should be high in calories, vitamins and proteins but low in salt. The last requirement means the use of salt free bread, salt free butter and severe restriction of the use of milk or its products. Calcium has to be supplied directly or in the form of reconstituted sodium free milk (Mead, Johnson & Co.). Edema will usually respond to these dietary measures unless the serum albumin is very low. In such instances, in which mercurial diuresis also is unsatisfactory, the most effective measure is the intravenous injection of salt poor, concentrated human serum albumin in a dosage of 25 to 50 Gm. daily for twenty to thirty or more days, depending on the amount of edema (Thorn and others: *J. Clin. Investigation* **24**:802 [Nov.] 1945). This treatment not only acts to promote diuresis but also favors protein storage and restoration of tissue protein. In some children the ordinary sodium rich concentrated human serum albumin may be effective, but the large amount of salt injected with the protein tends to defeat the purpose of the treatment. Paracentesis of the abdomen or chest should be carried out only when mechanical embarrassment of respiration or circulation exists, since the protein in the discarded fluid is lost to the body and can be regenerated only with difficulty. During a nephrotic crisis, intravenous administration of amino acids may be life saving. Chemotherapy is of course indicated during infections or suspected infections, blood transfusion for anemia and the usual vitamin, liver and iron supplements for nutritional reasons.

TREATMENT OF STOMATITIS AND GINGIVITIS

To the Editor:—**Please discuss the treatment of stomatitis and gingivitis (aphthous and ulcerative).** **R. J. Kent, M.D., Savannah, N. Y.**

ANSWER.—There have been no significant recent advances in the treatment of aphthous stomatitis. In the single acute type spirit of camphor, camphorated phenol, zinc chloride, silver nitrate and other preparations have given symptomatic relief. As a rule the condition is self limited (eight to fourteen days). Vitamin B complex and smallpox vaccine have also been used, particularly in the multiple recurrent type of aphthous stomatitis. The results with smallpox vaccine have not been encouraging.

In ulcerative gingivitis (ulceromembranous gingivitis, Vincent-Plaut disease, Vincent's infection, trench mouth) treatment in the past has depended primarily on four groups of drugs: (1) oxygen liberating agents (zinc peroxide, hydrogen peroxide, sodium perborate, potassium permanganate); (2) spirocheticides (arsenicals, bismuth compounds, mercurials); (3) caustics (copper sulfate, chromic acid, trichloroacetic acid, silver nitrate) and (4) dyes (gentian violet, methylene blue, acriflavine, mercurochrome). The sulfonamides have been used.

PENTACHLORPHENOL

To the Editor:—**A man was exposed to pentachlorphenol spray (used in termite control) one month ago and received severe burns on the hands and face. Since then he has developed a severe cough. Examination of the larynx reveals edema, with a thick exudate. Since this is a product with five chlorine ions attached to the phenol radical I assume that he has to all intents and purposes the same reaction as that due to chlorine gas. Is there any treatment that would alleviate his paroxysms of coughing and to hasten resolution of his laryngeal state at this late date?**
Carter L. Pitcher, M.D., Portsmouth, Ohio.

ANSWER.—Since pentachlorphenol is readily absorbable through the skin and mucous membranes, surface exposure may be more significant than for commoner surface irritants. Systemic involvement frequently and possibly regularly accompanies extensive external damage. The nature of the injuries from pentachlorphenol and related phenates is well described by McGavack, Boyd, Piccione and Terranova (*J. Indust. Hyg. & Toxicol.* **23**:239, 1941) and Deichmann, Machle, Kitzmiller and Thomas (*J. Phar.* **76**:104, 1942). The toxemia induced reveals itself through accelerated respiration, fever, glycosuria, hyperglycemia, profound muscular weakness, cardiac and vascular damage, edema and hemorrhage. Anemia and leukopenia may appear. Central nervous system injury may be prominent, and this may be reflected in such manifestations as hyperpyrexia and glycosuria. Persistence of local lesions for six weeks is not extraordinary. In the case described in the query, if the laryngeal dysfunction occurred shortly after exposure, the cause was probably pentachlorphenol. If this condition still persists, careful inquiry should be directed to the neurologic state, the hemopoietic system and the vascular system. No specific therapy for the pathologic condition of the larynx is known. Treatment should be the usual one for respiratory tract edema and bronchitis. The detection of pentachlorphenol in the urine at this remote time seems improbable.

CAUSES OF LIPEMIA

To the Editor:—**Please discuss the causes of lipemia.** **M.D., New York.**

ANSWER.—The normal range of values for blood plasma fats are, in milligrams per hundred cubic centimeters, fatty acids 300 to 400, total cholesterol 110 to 300 (70 per cent esterified) and phospholipid 190 to 260. The wide normal range is undoubtedly due in part to differences in methods of analysis and partially to the nutritional state of the subject at the time of bleeding. A lipemia or hyperlipemia may be manifested by a milky appearance of the plasma, although this change does not occur in every instance. Generally an increase in any one component of the fatty fraction of the blood is accompanied with some degree of elevation of the other components, although the increase need not be proportional. There is considerable evidence indicating a relationship between carbohydrate metabolism and lipemia. Insulin lowers the blood fat of lipemic diabetic patients and simultaneous glucose administration inhibits alimentary lipemia in normal dogs.

The glands and organs most concerned in carbohydrate metabolism (liver, pancreas, thyroid, pituitary and adrenals) also influence the fat content of the blood Some writers have suggested that the conditions that tend to lower the serum proteins predispose to lipemia. It has been shown that an increase in one or more of the blood fat fractions may occur following fat ingestion, in diabetes mellitus, nephrosis, hypothyroidism, xanthomatosis and severe anemia, after hemorrhage, after volatile anesthetics, in starvation, during pregnancy, in arsenical hepatitis and associated with fatty livers in chronic alcoholism.

THROMBOPENIC PURPURA

To the Editor:— **A physician aged 45 has thrombopenic purpura hemorrhagica. There is no history of previous serious illness. Bleeding from the nose, tongue, gums and lips has occurred every three to four nights for the past three weeks. The coagulation and bleeding times are normal the capillary resistance test is negative; platelets number 70,000 to 90,000. The blood picture is otherwise normal. The spleen and liver are moderately enlarged. Please discuss treatment, especially the relation of climate and altitude to this disease. The patient has lived in New York for seven years. Is an altitude of 2,200 feet harmful?**
M.D., New York.

ANSWER.—This is not the usual picture of thrombopenic purpura. Against this diagnosis is the normal bleeding time and normal capillary fragility. Further, bleeding does not usually occur in thrombopenic purpura with a platelet count above 60,000, and the spleen is not palpable in the majority of cases.

Other causes of splenomegaly and thrombopenia such as liver disease and leukemia should be excluded. Further laboratory study should include liver function tests, determination of the prothrombin time in the blood and a sternal marrow aspiration.

The treatment of this condition will depend on the cause. Climate and altitude are probably unrelated to the bleeding tendency.

CORNEAL TATTOOING

To the Editor:—**The accepted procedure for tattooing the cornea is staining with 2 per cent platinum chloride followed by 2 per cent aqueous hydrazine hydrate. Is there a better method of corneal tattooing?**
W. Edward McGarvey, M.D., Jackson, Mich.

ANSWER.—The technic described in the query gives the best permanent results if the epithelium is scraped off to Bowman's membrane before using the chemicals. It is well to outline the size of the proposed area with a large 4 to 6 mm. trephine in order to have a round "pupil."

RECURRENT MALARIA

To the Editor:—**What are the effects of heat, exertion and cold on chronic malaria? Can these cause recurrent attacks of malaria?**
Richard A. Wilts, M.D., Niagara Falls, N. Y.

ANSWER.—It has been a constant experience that extremes in temperature, fatigue and particularly alcohol are responsible for precipitating a relapse in malaria. However, the recurrences of this chronic disease can appear without any relationship to known external causes.

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